Selective Exposure to Information in the context of Escalation of Commitment

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Doctoral thesis

to obtain the degree of doctor

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on the authority of the Rector Magnificus, prof. dr. S.C.J.J Kortmann,

according to the decision of the Council of Deans

to be defended in public on Tuesday, 28 October 2008

at 15.30 hours

by

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"Ring the bells that still can ring
Forget your perfect offering
There is a crack in everything
That's how the light gets in"

from Anthem by Leonard Cohen

Bana öğrenmenin güzelliğini öğreten
anneanneme

To my grandmother, who taught me
the beauty of learning

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My grandmother whom I adored was one of the first (primary school) teachers of the Turkish Republic She raised three daughters and four granddaughters, five of whom chose academic life Anneannem (grandma) used to teach any child who wanted to learn and would find a way to teach those who did not want to I remember myself sitting across from her, thinking I want to be like her The most beautiful complement that I ever received came from her "I see myself in you" I hope to live up to this complement one day

During high school, I spent a lot of time in my mother's office at the Istanbul Technical University and started to appreciate how these people cherished their academic life So, I knew what I was going to do once I graduated from university get a Ph D

The will to get a Ph D , however, does not preclude the difficulties around the actual process leading to the dr title Even though I found (and still find) the topic of my dissertation very intriguing and it was most exciting to design, run my experiments, and do the analysis, there were times I could not help asking myself what greater good I was serving I am thankful to those around me who supported me at those times and helped me see the bigger picture and anticipate the shiny days ahead

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Ozge Pala

Tilburg, August 2008

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Chapter 1

Introduction

How should decision-makers respond to failure? After having invested money and time in a course of action, what should one do in the face of failure? Rational models of decision making say that after considering expected gains and losses, a decision maximizing the future outcomes should be taken, past investments, personal responsibilities, and previous choices are irrelevant But are they really irrelevant?

In the last decades, an extended body of research has investigated the commitment of decision makers to losing courses of action Numerous studies have shown that decision makers have the tendency to keep on investing in failing courses of action (Staw, 1976) What is more interesting is that rationalizing motives, rather than rational ones have been shown to lead to such behavior This phenomenon has been given different names such as escalation of commitment (Staw, 1976, 1981, 1997), sunk cost effect (Arkes and Blumer, 1985, Garland, 1990, Garland and Newport, 1991), and entrapment (Brockner and Rubin, 1985) Staw (1997 192) defines situations in which escalation of commitment takes place as those "where losses have been suffered, where there is an opportunity to persist or withdraw, and where the consequences of these actions are uncertain" Hence, neither withdrawal nor persistence is a clear-cut solution to the problem of the decision-maker Staw (1976) provided the first experimental evidence of escalation and showed that after receiving negative consequences, those responsible for the choice of a course of action invested more than those who were not responsible for the choice Others (Garland, 1990, Garland and Newport, 1991, Moon, 2001) have shown that the higher the amount of past investments, namely sunk costs, the higher the future investments in a failing course of action Recently, there has been increased interest in the topic of escalation of commitment and its relevance has been shown in different management areas such as marketing (Biyalogorsky, Boulding, and Staelin, 2006), information systems projects (Pan, Pan, Newman, and Flynn, 2006, Tiwana, Keil, and Fichman, 2006), business ethics (Street and Street, 2006), accounting (Cheng, Schultz, Luckett, and Booth, 2003), and draft for the National Basketball Association (NBA) (Staw

and Hoang, 1995) There has also been recent interest in identifying the emotional side of escalation (Moon, Hollenbeck, Humphrey, and Maue, 2003, Wong, Yink, and Kwong, 2006, Wong and Kwong, 2007), the role of cognitive biases in escalation (Keil, Depledge, and Rai, 2007), and the role of information in escalation decisions (He and Mittal, 2007)

Research on escalation of commitment has mainly been experimental, but existing case evidence highlights the importance and costliness of escalation situations for business Based on a cross-sectional survey of 2,231 information systems audit and control professionals, Keil and Mann (2000 657) reported that "between 30% and 40% of all software projects exhibit some degree of escalation" Using the Standish group's (2003) survey, Pan, Pan, Newman, and Flynn (2006 4) reported that "43% of software projects were over budget and 54% had time overruns"

One of the first case evidence of escalation came from Staw and Ross (1986) Expo86, a world exposition in Vancouver hosted by British Columbia The initial proposal for the exposition in 1978 estimated a cost of $78 million By 1985, however, Expo86 had become a project of "$1 5 billion with an official projected deficit of $311 million" (Staw and Ross, 1986 280) Yet, throughout this period, even in 1984, officials kept on reaffirming their commitment to the project

Later, Ross and Staw (1993) reported on a case of the construction of the Shoredam nuclear facility by Long Island Lighting Company The initial expectation was to construct a facility with the capacity of 540 megawatts in the period 1969 – 1973 for a cost of between $65 and $75 million "On March 18, 1984, it was announced that the Shoredam plant was complete but it would take a year or more to begin operations" (Ross and Staw, 1993 712) In 1985, a 5% operating permit was granted but it became clear that the full operation of the plant would lead to a major catastrophe Finally, "on May 12, 1988, LILCO reached agreement with the state of New York to close Shoredam" (Ross and Staw, 1993 713) The costs were at the order of $5 3 billion

Other examples of escalation include the Taurus project at the London Stock Exchange for a computerized system (Drummond, 1996, a project started in May 1986 with an initial expectation of 3 years and 6 million pounds It was eventually cancelled in 1993 with a cost of over 80 million pounds), the CONFIG project (Keil, 1995a, a project for the development of an expert system that was funded for about 12 years till it was finally terminated), Centco (Newman and Sabherwal, 1996, an information systems development project that was stopped and restarted many times over a 17-year period, 1975-1992)

All these cases show that escalation of commitment is a costly (in terms of time, money, and reputation) phenomenon that can occur in different (managerial) settings Understanding escalation situations better could help develop ways of coping with escalation as well as techniques to avoid it Past research on escalation mainly focused on identifying the determinants of escalation Two broad categories of determinants have been identified behavioral and project determinants (Staw and Ross, 1987, Staw, 1997) Behavioral determinants include three groups of determinants psychological (related to the decision-makers involvement with the project), social (related to the social group surrounding a decision-maker), and organizational (related to the structural environment of the project) The project determinants, on the other hand, include the objective information on the project and its economics According to Staw (1997), the relative importance of behavioral versus project factors determines whether escalation of commitment will take place or not An interesting addition to this relation is that the perception of the project determinants is determined by the behavioral factors themselves (Staw, 1997) The significance of this is that what should be considered as determinants of escalation is not project determinants but *perceived* project determinants

Researchers have investigated the effect of project determinants and shown that, depending on its content, different information items can either cause escalation of commitment to or withdrawal from a failing course of action (e g Staw and Fox, 1977, Staw and Ross, 1978, Bateman, 1986, McCain, 1986) The common approach in this line of research has been to assume information as an 'objective' given without considering how the perception of the decision-makers, shaped by the behavioral factors, can affect the choice and perception of the information used Unlike prior research, this dissertation will not make this assumption and focus on the perceived project determinants While doing so, the occurrence of a cognitive bias, i e selective exposure to information, alongside escalation will be studied Studying the occurrence of cognitive biases under escalation situations is in line with recent research (Keil, Depledge, and Rai, 2007, He and Mittal, 2007) and has both theoretical and practical relevance These will be discussed in section 1 1 A second contribution of this dissertation will be in the domain of de-escalation which is an under-studied area within the domain of escalation Causal loop diagrams based on the principles of System Dynamics will be proposed as a de-escalation tool that can also potentially decrease selective exposure tendencies The theoretical and practical implications will be discussed in section 1 2 Finally, in section 1 3, an overview of the dissertation will be given

1.1 Selective exposure to information and escalation of commitment: relevance

On Wednesday February 5, 2003, US Secretary of State Colin Powell addressed the United Nations Security Council presenting "proof" that Iraq had weapons of mass destruction His presentation included evidence and satellite photos of what he called "mobile bioweapons laboratories" However, after the invasion of Iraq, no nuclear, biological, or chemical weapons were found (ABC NewsOnline, Friday September 9, 2005) Mr Powell and Col Lawrence Wilkerson, a long-time advisor to Mr Powell, both admitted that the evidence submitted to the United Nations may have been wrong (BBC News, Saturday 3 April, 2004, CNN com, Tuesday August 23, 2005, ABC NewsOnline, Friday September 9, 2005) More recently, based on a study by two nonprofit journalism groups, CNNPolitics (CNNPolitic com, January 24, 2008) reported "President Bush and his top aides publicly made 935 false statements about the security risk posed by Iraq in the two years following September 11, 2001" It is too early to state whether the involvement of US in Iraq is a case of escalation of commitment or not However, this example shows the use of confirming information to back up decisions or commitments made

Tendency of decision-makers to prefer and use information that is consistent with their beliefs, attitudes, and decisions is referred to as selective exposure to information (Festinger, 1957, Frey, 1986, Fischer, Jonas, Frey, and Schulz Hardt, 2005) From case studies on escalation of commitment, it is possible to find evidence for the occurrence of confirming information use in escalation situations In the analysis of the Expo86 case, Staw and Ross (1986 289) indicated "Certainly one feature that may have contributed to the continuing Expo decision was information processing errors supporting perseverance of belief" For instance, as the budget overruns increased, the attendance estimates were increased and the warning signals on budget overruns were "ignored or downplayed" Staw and Ross reported that one of the staff members noted, "The whole emphasis among the Expo staff was on being positive" (Staw and Ross, 1986 289)

For the Shoredam case, Ross and Staw (1993) gave the following examples "LILCO decision-makers' estimates of the future demand for energy and the possibility of energy blackouts were vastly overstated, their estimates of the cost and completion date were invariably optimistic, and their estimates of the benefits of Shoredam were greater than those

provided by observers in virtually every case" (Ross and Staw, 1993 716-717) Similarly, overestimation of the chances of success was also evident in the Centco case (Newman and Sabherwal, 1996) Another issue in the Shoredam case was the inability of the officials to identify the causes of the failure properly "there is much evidence to suggest that decision-makers saw the failing decision not so much a product of their own faulty calculus or lack of management as the result of intervention by external regulators and anti-social elements" (Ross and Staw, 1993 717) Ross and Staw indicate that the company officials used such reasoning repeatedly in advertising and public statements

Montealegre and Keil (2000), on the other hand, reported that at the Denver Airport case, negative feedback was either ignored or downplayed for an extended period The same was reported by Keil (1995a) for the CONFIG case The project leaders made attempts to deny the negative feedback by not listening to the negative feedback and by making remarks such as "wrong answer, we don't like that answer" (Keil, 1995a 350)

These examples show that in escalation situations, decision-makers make use of information that can support their position (e g overestimates of success, blaming external causes for possible failure) while ignoring negative feedback Such use of information can be seen as both a cause and consequence of escalation In theoretical research on escalation, however, biases in information processing have received attention as causes of escalation, but not as its consequence In this dissertation, the assertion is that the tendency to prefer and use confirming information is one of the consequences of escalation Dissonance theory (Festinger, 1957, 1964) will be used to explain why such selective exposure to information can be expected to occur in escalation situations If confirming information leads to further escalation and decision-makers prefer and actively select confirming information under escalation situations then they can get trapped in a vicious circle of escalation and information biasing In such a situation, withdrawal from a failing course of action can become a very unlikely outcome

From a practical perspective, this research can provide insights into the information preference of escalating decision-makers Based on this insight, better information search and processing strategies can be devised Such strategies could be useful in avoiding unnecessary escalation and unnecessary time and money investments

From a theoretical perspective, this research will make a step to jointly studying escalation of commitment and selective exposure to information and understanding the consequences of their co-occurrence There have been many studies investigating these biases individually However, research linking the two has been scarce even though establishing the

(lack of) link can improve our theoretical understanding of escalation situations and their consequences Knowing more about information preferences of decision-makers under escalation situations would also provide insight on the role of perceived project determinants in the escalation research As explained before, Staw (1997) pointed out the importance of perceived project determinants in escalation decisions Prior research, on the other hand, focused mainly on project determinants and not their perception This research aims at bridging that gap by focusing on the perception of the project determinants

Moreover, as will be further explained in chapter 3, investigating whether selective exposure to information occurs in escalation situations could give further theoretical support to one of the explanations of escalation, namely, self-justification motives (Staw, 1976) Both self-justification motives and selective exposure to information are predicted by the same theory According to dissonance theory, factors that induce self-justification and hence, escalation, would also induce tendency for confirmatory information search Therefore, linking these two research domains could serve as a means of testing and strengthening the self-justification explanation

1.2 De-escalation: relevance

Even though the different causes of escalation of commitment are well understood, strategies for how people can reduce escalation did not receive much attention in research This is a pity because understanding how de-escalation can be achieved could be very useful in identifying policy recommendations (Simonson and Staw, 1992) Given that escalation decisions can be very costly, research should not only strive to understand the factors that cause escalation but also identify how this understanding can be used to devise strategies to avoid escalation or generate timely de-escalation Besides some experimental work (e g Simonson and Staw, 1992, Schwenk, 1988, Boulding, Morgan, and Staelin, 1997), lately, researchers tried to understand de-escalation further by examining cases in which de-escalation took place (E g , Keil, 1995a, Montealegre and Keil, 2000, Pan, 2005, Pan, Pan, Newman, and Flynn, 2006)

One of the contributions of this research will be identifying a de-escalation tool based on System Dynamics (SD), a methodology for modeling and analyzing complex problems from a feedback perspective (Forrester, 1961, Sterman, 2000) The main purpose of modeling in SD is understanding *why* a certain situation has occurred (e g the failure of the strategy) and

use this information to design robust strategies to improve the situation (e g adjustments to the existing strategy or development of a new strategy to solve the problem) Such a tool could get the decision-makers to actively think about the problem and its causes and get them involved in the generation of alternative strategies As such, through providing the decision-makers more objective grounds to base their decisions on, using an SD model could help eliminate the irrational reasons that stimulate escalation In other words, it could help shift the reasons for continuation or withdrawal decisions from rationalizing back to rational

From a theoretical perspective, this research will introduce System Dynamics as a potentially useful method that has not previously been considered as a possible de-biasing technique Future research can build on the findings of this research to introduce similar analysis techniques that could benefit management research

From a practical perspective, using such a technique would not only help to decrease escalation tendencies but also provide grounds for more thorough decision-making

1.3 Overview of the dissertation

In chapter 2, literature on two issues relevant to the topic of this thesis will be reviewed escalation of commitment and selective exposure to information First, the focus will be on escalation of commitment Escalation situations will be defined and the determinants of escalation will be discussed Two most prominent theories, namely sunk cost effects and justification motives, explaining why escalation takes place will be discussed Of these, it will be shown that explanation based on the justification motives is the one that has received the most support Hence, justification motives will be chosen as the explanation to focus on in this thesis Second, the literature on the effects of objective information (i e , the project determinant) on escalation of commitment will be presented Third, the importance of relevant information for decision-making and the difficulties in the identification of relevant information will be discussed and selective exposure to information will be identified as an important bias introducing difficulty in determining information relevance

In chapter 3, the link between justification motives and selective exposure to information will be developed further While doing so, dissonance theory will be used The conceptual model, the research questions, and the hypotheses for the research will be presented The conceptual

model for the research depicts choice, responsibility for decision consequences, initial commitment, and decision consequences as the four factors that are expected to stimulate not only escalation of commitment but also selective exposure to confirming information In this thesis, laboratory experiments are used as the research method Subjects were asked to take part in a role-playing decision-making scenario that simulates a situation in which escalation of commitment may take place A questionnaire was used to gather data on the choices and commitment levels of the subjects Such methodological choices will further be motivated in chapter 3

Chapters 4 and 5 are empirical in nature and will include the experiments designed to test the conceptual model developed in chapter 2 In chapter 4, the focus will be on the effect of choice and responsibility for decision consequences on the selective exposure to confirming information The hypothesis on whether decision-makers who are responsible for the choice and consequences of a strategy prefer confirming information over disconfirming information will be tested In chapter 5, the focus will be on the effect of initial commitment and decision consequences on selective exposure tendencies

In chapter 6, the focus will shift to the second goal of this dissertation establishing an instrument that can work both as a de-escalation tool and counterbalance the tendencies to selectively search for confirming information Such a tool based on the System Dynamics method will be proposed and tested by means of an experiment

Finally, in chapter 7, the conclusions of the four experiments presented in the preceding chapters and the implications of this thesis for theory and practice will be discussed, limitations of this research will be pointed out, and recommendations for future research will be identified

Chapter 2

Literature Review

In this chapter, literature on two issues dictated by the topic of this thesis will be reviewed escalation of commitment and selective exposure to information First, the focus will be on escalation of commitment Escalation situations will be defined and the determinants of escalation will be discussed Sunk cost effects and justification motives will be discussed as the two prominent explanations on why escalation takes place Second, the literature on the effects of 'objective' information on escalation of commitment will be presented Third, the importance of relevant information for decision-making and the difficulties with identifying relevant information will be discussed Selective exposure to information will be identified as an important bias introducing difficulty in judging the relevance of information

2.1 Escalation of commitment

2.1.1 Definition and determinants of escalation of commitment

Escalation of commitment is defined as the tendency to keep on investing in a failing course of action (Staw, 1976) Given the uncertainty surrounding the consequences of actions (Staw, 1997), neither withdrawal nor persistence is a clear-cut solution to the problem of the decision-maker Staw and Ross (1987 40) identified three common factors to what they call *escalation situations*

1 "All of the situations entail some loss or costs that have resulted from an original course of action
2 They are not one-shot affairs, but dilemmas involving ongoing courses of action
3 They comprise situations where simple withdrawal is not an obvious solution to the problem, either because withdrawal involves substantial costs or because persistence holds at least the prospect for eventual gain."

One could question whether escalation decisions are always irrational Even though a course of action is failing it might still have high future prospects Would continuation be irrational in such cases? Many of us succeeded in different situations just because we tried again and we tried harder When it comes to economically rational decision-making, an individual should consider the expected gains and losses and make a decision maximizing future outcomes How much has been invested in the past or who made the previous decisions or reputation should not have any bearing on the decision to continue or withdraw Yet, research has shown that people continue to invest in failing courses of actions for reasons other than rational economic reasoning It has been shown that when faced with failure people responsible for previous decisions invest more than those who are not, they take sunk costs into account, and they keep on investing to save their reputation in the eyes of others When the reason for continuation shifts from rational to rationalizing we talk about non-rational escalation In situations where such reasons are used, the old wisdom we teach our children "try again, try harder, try until you can do it" may indeed not be the wisest way to proceed

The focus of this dissertation is on situations where individual's behavior under one set of conditions differs from behavior under another set of conditions More specifically, the focus will be on escalation situations where upon the receipt of negative performance feedback, individuals who are responsible for the initial choice of an action or are held responsible for its consequences or are, in general, initially committed to the course of action will behave differently and show more tendency to keep on investing in the same action than those who are not responsible for the initial choice or are not held responsible for its consequences or are not initially committed

For understanding the causes of escalation, it is useful to look at different definitions of commitment and factors that are believed to affect commitment Definitions of commitment that will be considered here are those that are most relevant to the escalation paradigm, i e commitment to a course of action or strategy Kiesler (1971), as one of the first researchers to build a model of commitment, defined commitment as "the degree to which one is bound or tied to some behavior" (Kiesler, 1971 48) as well as "pledging or binding of the individual to behavioral acts" (Kiesler, 1971 30) Salancik (1977) also used this definition and pointed out that "to act is to commit oneself" (Salancik, 1977 4) Others have been equating choice with commitment For instance, Festinger (1964 156) said, "a decision carries a commitment with it if the decision unequivocally affects subsequent behavior" and Brehm and Cohen (1962 7) said, "A person is committed when he has decided to do or not do a certain thing, when he

has chosen one (or more) alternatives and thereby rejected one (or more) alternatives, when he actively engages in a given behavior or has engaged in a given behavior Any one or a combination of these behaviors can be considered a commitment" Kiesler (1971) argued that choice or decision to do something is *not* commitment itself but it causes a level of attachment to a certain course of action and makes the individual more resistant to change it Defined this way, commitment is a continuous variable (Kiesler, 1971) with various degrees "A statement of a belief or attitude is a less committing action than the signing of a petition in favor of the belief, which in turn is less committing than actively advocating the belief to a hostile or skeptical audience" (Salancik, 1977 4)

Both Kiesler (1971) and Salancik (1977) identified a number of factors that would affect the degree of commitment These factors make a person's behavior more binding, and hence affect the degree of commitment These factors are as follows (Kiesler, 1971 33, Salancik 1977 4-5)

1 "The explicitness of the act how public or unambiguous the act was"
2 "The degree of irrevocability or irreversibility of the act" This refers to whether the act can be reversed or undone
3 "The degree of volition (or freedom of choice) perceived by the person performing the act" Kiesler (1971) defined volition to be inversely related to the degree of external pressure Salancik (1977) points out that volition links the act to the individual He points out that choice, the presence of external demands for action, the presence of extrinsic bases for action, and the presence of other contributors to action are the major characteristics that relate to the degree of perceived volition of action
4 "The importance of the act for the subject" (only identified by Kiesler, 1971)
5 "The number of acts performed repetitions of the same act or separate behaviors that are closely connected in some way" (only identified by Kiesler, 1971)

Within the escalation research, Staw (1982 101-102) defined commitment as "the glue that holds individuals in a line of behavior, encompassing those psychological forces that bind individuals to an action as well as those situational forces that make change difficult" In his attempts to map the antecedents of commitment in a causal model, based on Kiesler (1971) and Salancik (1977), Staw (1982 103-106) developed a categorization of determinants of commitment to behaviors

1 *Responsibility for action* This is the construct of (freedom of) choice or volition

2 *Salience of the action* 'Explicit and public actions are more binding because they presumably are more salient to both the individuals and others who are watching"

3 *Consequences of the action* "Binding actions are thought to have implications beyond the behavior itself They may have ramifications upon the individual's past performance or identity They may have implications upon future acts And they may have spillover effects on the life of the decision-maker or others affected by his or her actions "

4 *Responsibility for consequences* Staw points out that this factor has been overlooked in the commitment literature He reasons that this might be due to assuming that volition necessarily implies responsibility for consequences However, he points out that this is not necessarily the case "One may, for example, have had little choice in an action but still be held accountable for it, and an action may be high in volition but responsibility is low because its consequences are seen as heavily influenced by external forces" Hence, it becomes important to distinguish responsibility for choice and responsibility for consequences

Initially, researchers focused on responsibility for action, i e choice, and consequences of action as the main determinants of escalation The first paper demonstrating their effects on escalation of commitment was by Staw (1976) In a decision-making experiment (see figure 2 1), he manipulated the decision consequences and responsibility for action, i e choice, orthogonally In this study, subjects played the role of a financial vice president who had to make decisions on the allocation of research and development (R&D) funds Subjects were asked to make two investment decisions The first decision was to choose one of the two possible departments to invest all the available R&D funds (figure 2 1 the initial allocation decision) Half of the subjects was asked to choose the department to invest in (high-responsibility condition) and the other half was told that the allocation was done by another financial officer of the company (low-responsibility condition) The subjects were then presented with financial data of both divisions over the 5 years after the initial investment (figure 2 1 decision consequences) Half of the subjects was informed that the previously-chosen division performed better than the not-chosen division whereas the other half was informed otherwise After studying the performance information, the subjects were asked to divide the new available funds amongst the two divisions (figure 2 1 second allocation decision) The dependent variable used in the study was the individuals' commitment to the previously chosen investment alternative and was operationalized by the "amount of money subjects allocated on the second R&D funding decision to the corporate division chosen

earlier (either chosen earlier by the subject or the other financial officer mentioned in the case)" (Staw, 1976 33)

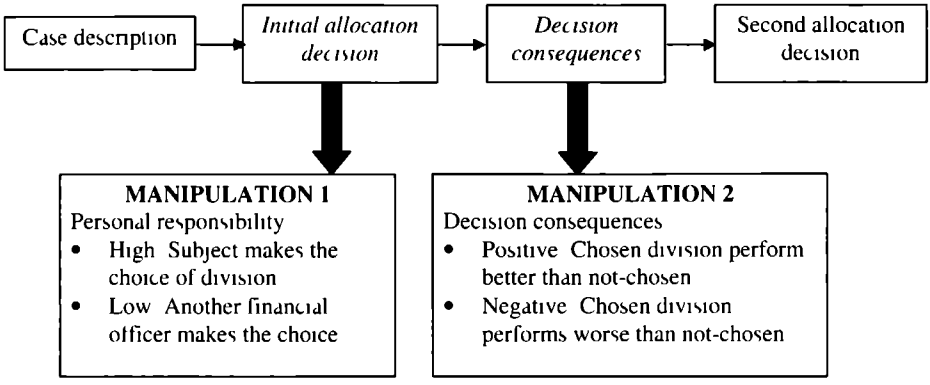


Figure 2.1: Experimental design of the experiment by Staw (1976)

The results showed that there were main effects of both personal responsibility and decision consequences and a significant interaction of these variables High-responsibility subjects invested more than the low-responsibility subjects and subjects under negative consequences condition invested more than those in positive consequences condition The amount invested in the previously-chosen alternative was greatest in the high-responsibility & negative consequences condition However, consequences did not have any effect in the low-responsibility condition and responsibility did not significantly affect results under the positive consequences condition The main conclusion of the paper was that subjects responsible for the initial choice of the department escalated their commitment to the previously-chosen alternative especially when faced with negative decision consequences

In the 30 years following this paper, there have been numerous experiments showing evidence for escalation of commitment These studies, with a few exceptions, held the decision consequences constant at the negative level (since escalating commitment to an action that is performing well is not very interesting) Choice, as a proxy for personal responsibility for action, remained more or less a constant over all the escalation studies Besides these two factors, different researchers focused on different variables as determinants of commitment This led to a large number of determinants as well as some conflicting findings As the number of determinants increased, it became more difficult to make sense of

the different variables This led to the realization that there is no single determinant for the occurrence of escalation In an attempt to put different causes together, Staw and Ross (1987) presented a classification scheme that encompassed four categories of determinants project, psychological, social, and organizational

Project determinants include the objective aspects of a project (Staw and Ross, 1987) reflecting the costs and the benefits (Newman and Sabherwal, 1996) For example, escalation of commitment is likely when closing costs, i e costs associated with stopping a project, are high or when failure can be attributed to temporary external causes Other examples include the salvage value, economic merits of pursuing a project, efficacy of resources, feasibility of alternatives, and size of a project's goal

Psychological determinants include attributes of the decision-makers' involvement with the project (Keil, 1995a) As Staw and Ross (1987 48) indicate "some of the psychological factors are forces that can induce errors in the calculation of gains and losses, while others refer to forces that can more directly bind individuals to a course of action" For example, decision-makers tend to stay committed when they want to prove the correctness of their previous choice to themselves (self-justification motives) or when they have high self-esteem (Newman and Sabherwal, 1996) Other examples include sunk cost effects, biases in information processing, ego importance of failure, and framing effects

Social determinants include features of the social group surrounding a decision-maker (Staw and Ross, 1987) Examples would include face-saving and external justification needs, norms of consistency, public identification with the project, modeling of other's behavior in similar circumstances, job security, competition and/or political rivalry

Organizational or *structural* determinants refer to the "structural and political environment surrounding a project" (Keil, 1995a 423) Some examples are projects' institutionalization, inertia in the organization, and economic and technical side-bets (such as hiring employees or buying machinery) In later years, Staw (1997) also added *contextual effects* to the list of determinants to include those forces that are beyond the organization itself such as governmental and political interest in the project

All these variables and mechanisms can contribute to the occurrence of escalation of commitment This is not to say that all the determinants are of equal importance Some may be more dominant than others at times and over time, the dominance can shift from one factor to another This dynamic co-existence of antecedents makes escalation situations especially

interesting. Initially, Staw and Ross (1987) suggested a temporal model for escalation. They argued that at the outset, the project considerations are dominant. If the revenues are believed to exceed the expected costs the project is initiated, otherwise, not. In the next stages of the escalation process, psychological and social determinants are expected to become increasingly important and dominant (Brockner, 1992). Even at later stages of escalation, organizational factors are expected to stimulate further commitment. However, given the lack of empirical evidence supporting this temporal model, Staw (1997: 209) suggested a much simpler model showing the aggregate effects of different determinants (see figure 2.2). This model emphasizes that it is the relative importance of behavioral variables (totality of psychological, social, and organizational determinants) versus perceived project determinants that leads to escalation or withdrawal: "behavioral forces must match or exceed the strength of any negative economic data in order to hold organizations and their decision-makers in a losing course of action" (Staw, 1997: 209). This model also recognizes that behavioral factors do not only have a direct effect on commitment but also an indirect effect by determining the information attended to and the way this information is perceived. That is why the model includes *perceived* project determinant and this means that the information gathered and used is not necessarily *objective*. As a result, the individuals do not necessarily have the "correct" perception of the objective information regarding the project.

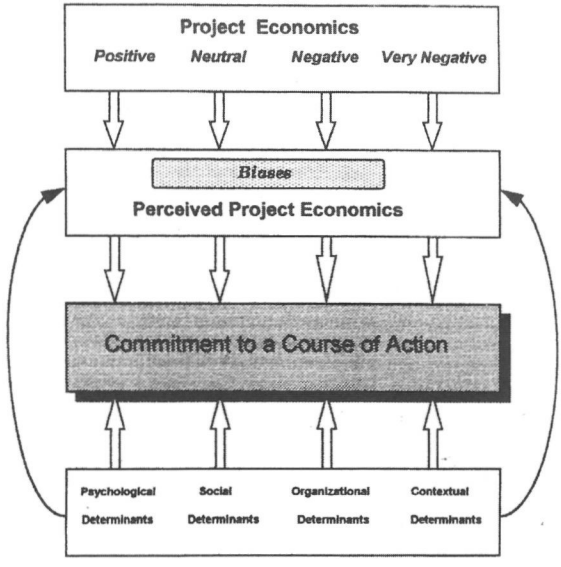


Figure 2.2: An aggregate model of escalation by Staw (1997). *Printed with permission.*

Overall, from this model, it is possible to identify three different effects that are interesting to study: (i) the effect of behavioral determinants on commitment; (ii) the effect of project determinants on commitment; and (iii) the effect of behavioral determinants on the perception of project determinants. The following sections will review prior research concerning these effects. Of these three, the effect of behavioral determinants on escalation is well-studied and understood. The most prominent explanations of escalation are all based on behavioral motives. For instance, the sunk cost effect and self-justification motives are psychological determinants and external justification motives (also referred to as face saving) is a social determinant. The second and the third effects involve the project determinants, that is, objective information on the project and its progress. Whereas the direct effects of project determinants (i.e. information) on escalation has received quite some research attention, the effect of behavioral forces on the perception of project determinants has not. It is not clear how the information preferences of decision-makers are shaped under the influence of various behavioral forces. As will be explained later, depending on its content, information has the power to stimulate further continuation with or withdrawal from a failing course of action. Hence, understanding how behavioral forces affect the information preferences of individuals is very important to better understand escalation situations. This effect will be a focus of this research. Not all the behavioral forces will be studied in this thesis. The focus will be on self- and external justification motives. In the next section, as well as in chapter 3, the reasons for this selection will be explained.

Before discussing the specifics regarding this research, in the sections to follow, more review will be given on the main explanations of escalation and the effects of the project determinants on escalation. In the next section, the focus will be on the two most dominant explanations: sunk cost effect and justification motives. Then, in section 2.1.3, an overview of the literature on the effects of project determinants on escalation will be presented.

2.1.2 Effect of behavioral determinants on escalation of commitment

As explained previously, there are many behavioral determinants that have been shown to effect escalation of commitment. In this section, the focus will be on the two[1] most dominant

[1] There is a third explanatory theory based on the prospect theory which explains individuals' risk taking behavior under uncertain conditions (Kahneman and Tversky, 1979) The theory posits that individual's risk

determinants that have been used to explain why escalation takes place: sunk cost effect and justification motives.

Sunk cost effect: The sunk cost argument states that "the more money, effort, or time that has been invested in a project, the more likely the project will continue to receive resources" (Garland and Conlon, 1998: 2025). The research stream on the sunk cost effect has developed parallel to the escalation of commitment research stream. It is not clear whether sunk cost effect is one of the determinants of escalation or whether it is just another name for escalation tendencies.

The first evidence for the sunk cost effect came from Teger (1979). In his pioneering work, Teger used the famous dollar auction game and showed that people were ready to pay much more than the monetary worth of a prize. Dollar auction game was an unusual bidding game where both the highest and the second-highest bidders were to pay at the end of the auction while only the highest bidder got the price. Even though the auction was for one dollar, bidders were ready to pay much more than its monetary-worth. Another well-known study on the sunk cost effect in decision-making situations was done by Arkes and Blumer (1985). To simulate a personal decision-making situation, they asked their subjects to imagine that they had accidentally purchased two ski trips, one for $100 and the other for $50. The $50 trip was expected to be more enjoyable. Neither of the tickets was refundable. When asked which trip they would choose 54% of the participants chose for the $100 trip even though the other one was expected to be more enjoyable. Arkes and Blumer ran a similar experiment with theater tickets and showed that people who pay for a season ticket used their ticket more frequently than those who purchased it cheaper. They designed another set of experiments to investigate decision-making situations in a company setting. They asked their subjects to play the role of a president of an aircraft company deciding whether to invest $1 million of research funds

taking preferences will change depending on whether they perceive themselves to be in the domain of gains or losses such that they will be risk averse in the domain of gains and risk seeking in the domain of losses. For escalation situations, prospect theorist would assume that "individuals would experience themselves in the domain of losses" (Brockner, 1992. 51). Once the initial investment fails and the decision-maker needs to decide on whether to re-invest or not, this "subsequent choice becomes one between a sure loss (the initial loss on the investment) and the possibility of a larger loss combines with a chance to return to the reference point" (Whyte, 1986: 318). Given loss aversion, individuals would be risk seeking and would prefer to allocate additional resources with the hope of turning the situation around. The alternative, i e stopping right away, would mean accepting a sure loss This theory is not explained further in this thesis since it did not receive much support in previous research Moreover, Davis and Bobko's (1986) work comparing prospect theory explanation to self-justification explanation was more supportive of the latter

into the development of a plane that cannot be caught by conventional radar In one condition, the funds were to be used to start building the plane In the second condition, the subjects were informed that the project was 90% completed and the funds were to be used to finish the plane All the subjects were also informed that another firm was also beginning to market a radar-blank plane which appeared to be faster and more economical When asked whether they would invest the money, 64% chose to spend the money to complete the plane whereas only 5% chose to spend the money to start the project Based on these experimental findings, Arkes and Blumer represented sunk cost effect as a "judgment error" (Arker and Blumer, 1985 139) and explained that people take sunk costs into account with the "desire not to appear wasteful" In order not to waste the money already invested people invest even more money

Using the same radar-blank plane case, Garland (1990), presented his subjects 5 scenarios where he manipulated the amount of sunk cost ($1 – or $3/$5/$7/$9 – million spent and 10% – or 30%/50%/70%/90% – completed) He found a strong effect of sunk cost Later, using similar scenarios from different settings, Garland and Newport (1991) showed that it is not the absolute amount of sunk cost but rather "the proportion of allotted resources expended on the project" (Garland and Newport, 1991 65) that stimulated further investment One major problem with these experiments was that sunk costs were completely confounded with the project completion even though they are theoretically different concepts (Conlon and Garland, 1993) Realization of this led to a number of new experiments in which these two variables were manipulated independently (Conlon and Garland, 1993, Garland and Conlon, 1998) These experiments showed that it was the project completion effect that significantly contributed to continued investment and not the sunk cost effect Garland and Conlon (1998) explained these results by stating that sunk costs would play an important role in adoption decisions (which concern the initial choice about what projects to undertake or reject) but not in progress decisions (which concern whether a plan is making sufficient progress toward goal attainment) They proposed that the progress decisions, i e those regarding the continuation of a project, are caused by the "goal substitution" effect "As progress moves forward on a project, completion of the project itself takes increasing precedence over other goals (e g economic profit) that may have been salient at the time the decision was made to begin the project" (Garland and Conlon 1998 2025) and "individuals get caught up in the desire to complete what they have started, and as this completion draws nearer, information that might have been taken into account before choosing to undertake the project (e g

cost/benefit ratios, etc) becomes increasingly unimportant" (Garland and Conlon, 1998 2042)

Staw and Hoang (1995) attributed the lack of sunk cost effect in Conlon and Garland (1993) experiments to an artifact of the way the experiments were conducted They stated "Although Conlon and Garland could not find sunk-cost effects that were independent of project-completion information, this does not mean that costs are unimportant In natural settings, decision-makers may regularly confound the amount they have expended with progress on a project" (Staw and Hoang, 1995 490) In a case study where they studied decisions in the National Basketball Association (NBA), Staw and Hoang (1995) showed that sunk cost effects are operational in decisions regarding the playing time, length of career on NBA, and being traded to another team On the other hand, Moon (2001) demonstrated that the results of Conlon and Garland were an artifact of not controlling for the perceived likelihood of success "The closer the decision-maker feels that the project is to being complete, the better chance the decision-maker may feel that the project had to succeed" (Moon, 2001 107) Controlling for perceived success Moon found main effects for both sunk cost and completion and an interaction effect such that the importance of sunk cost increased with high levels of completion

Overall, these are contradictory findings on the effect of sunk cost If the sunk cost effect does exist the cause of this effect is not very clear Given reasoning of Arkes and Blumer (1985) and Heath (1995), it is the hopes of recouping the prior investments that make people pay attention to sunk costs So the goal is economic gain (Staw and Hoang 1995) Staw and Hoang (1995), on the other hand, argued that it is a combination of factors such as "the presence of cognitive bias, commitment, desire not to appear wasteful, and justification" (Staw and Hoang, 1995 492) that leads to the sunk cost effect Linking the sunk cost and escalation research streams to one another could help determine the causes of the sunk cost effect and the effect(s) of sunk costs on escalation

Justification motives: Staw (1976) argued that decision-makers keep on investing in the previously-chosen, but failing, courses of action because of the self-justification motives In order to justify their prior behavior to themselves or to others, subjects allocate more money to the earlier choice Such rationalizing or justifying behavior is driven by the "unwillingness to admit that they [decision-makers] were mistaken in having become committed to the initially chosen course of action" (Brockner, 1992 41) Self-justification explanation is based

on Festinger's (1957) theory of cognitive dissonance which states that individuals would like to avoid dissonance and would strive for consistency amongst their beliefs or between their beliefs and actions Having made the initial decision, people would convince themselves that they have done the right thing This would create a pleasant cognitive state Facing a negative outcome and quitting an action, on the other hand, would be equivalent to admitting that the previous decision was wrong and this would lead to the unpleasant and unwanted state of dissonance Staw (1976) argued that precisely for the need to justify their correctness and decrease dissonance, decision-makers would keep on investing even in the face of setback (See chapter 3 for further discussion on the dissonance theory and self-justification motives)

Justification motives could manifest themselves in two different ways A responsible decision-makers might want to justify (the correctness of) the previous choice to him/herself or to others Previous research mainly focused on choice of the initial course of action to induce personal responsibility and justification needs It should, however, be made clear that justification motives induced by choice alone are mainly internal justification motives the decision-maker wants to justify to him (or herself) that he (she) made the right decision Besides internal justification, people might have the need to show to the others that their initial decision was not erroneous For instance, when the choice is public or if others hold the person responsible for the negative outcomes (Salancik, 1977, Caldwell and O'Reilly, 1982) the so-called external justification motives can be aroused and such motives are directed at saving face External justification motives, a social determinant of escalation, can be powerful but whether they are enough to induce escalation on their own is not yet clear In this section, both internal and external justification motives will be explained

Internal justification motives are induced due to the feeling of responsibility for the initial choice of an action Following Staw's (1976) work that showed the importance of choice (i e personal responsibility) in inducing escalation, various experimental researchers, using different cases and procedures, replicated his results For instance, Conlon and Parks (1987) demonstrated the escalation effect where as compared to the subjects with low-responsibility, high-responsibility subjects allocated more after failure than success Davis and Bobko (1986) showed similar results in the context of public sector decision-making involving a financial allocation task Bazerman, Beekun, and Schoorman (1982) conducted an experiment where undergraduates in the role of a vice president were asked to evaluate the past performance of subordinates and make predictions of their future performance High-

responsibility subjects, namely, those responsible for the earlier promotion of the managers, were more positive in their rating than the low-responsibility subjects

One of the main supports for the self-justification explanation of escalation came from a study by Bazerman and his colleagues (Bazerman, Giuliano, and Appelman, 1984) Since dissonance theory underlies the self-justification explanation, Bazerman et al (1984) examined the dissonance processes by looking at two sets of dependent variables those contributing to the arousal and reduction of dissonance The dissonance theory would predict that greater commitment to a negative decision would result in a greater need to justify and this justification need would be aroused to the extent that the two consecutive decisions are seen as related Hence, Bazerman et al measured commitment and relatedness as the two factors contributing to the arousal of dissonance They also measured confidence ("in the ability to have made the optimal decision"), and reversal ("how much the subjects thought that further allocation would turn the situation around") as factors contributing to the reduction of dissonance They argued that confidence and reversal are "cognitions that make the allocation of additional resources consonant with the initial decision" (Bazerman et al , 1984 145) Their results showed that high-responsibility subjects experienced higher arousal and an increased motivation to reduce dissonance than low responsibility subjects Hence, they concluded that "it is plausible that dissonance processes underlie escalation of commitment" (Bazerman et al , 1984 150)

The studies discussed so far support the notion that decision-makers who feel responsible for the initial choice of an action keep on being committed to that action even after the receipt of negative decision consequences In all these studies, choice was used to generate responsibility for both the action and its consequences However, responsibility for choice does not necessarily imply responsibility for the decision consequences For instance, if the choice is not public then the feeling of responsibility may not occur (Salancik, 1977) Moreover, responsibility may also result from the assignment of an action (Caldwell and O'Reilly, 1982) by, for instance, the superiors Hence, researchers tried to identify whether it is mere choice or the responsibility felt for the consequences or a combination that leads to commitment

External justification motives received less research attention and were mainly studied as responsibility for decision outcomes (from now on, referred to as responsibility[2]). Caldwell and O'Reilly (1982) designed an experiment where they manipulated choice and responsibility orthogonally. The subjects were assigned the role of an administrative manager (of a small, growing technical company) who was going to hire a new employee. The subjects in the choice condition were asked to choose one of the three candidates whereas the subjects in the no-choice condition were presented with a single individual that was hired by the president of the company. After this manipulation, the subjects were informed that the company had lost a major government contact due to the new employee. At this point, the subjects in the high-responsibility condition were informed that they would be held accountable for the failure of this new employee whereas the low-responsibility subjects were informed that they would not be held responsible. The results suggested that responsibility for failure, on its own, can lead to escalation.

Schoorman and Holahan (1996) separated the effects of choice and responsibility for decision consequences in another way. They manipulated choice as in the previous studies. Then, responsibility was manipulated by telling the subjects in the low-responsibility condition that their initial decision was overruled and hence, not implemented. Both the high- and low-responsibility subjects were given the same performance feedback. All subjects were asked to decide how much money they would invest in the department that initially received the allocation. This meant that the subjects in the low-responsibility group had to decide on allocation to the division *not* chosen. Through these manipulations, Schoorman and Holahan created three groups which they named positive commitment (made the choice and the choice is implemented, that is, responsible for the decision consequences), negative commitment (made the choice but the choice is not implemented, that is, not responsible for the decision consequences), and no commitment (did not make the choice and is not responsible for the decision consequences). The study did not include 'no choice but responsible' condition.

The results showed that subjects in the negative commitment condition (whose initial choice was not implemented), when faced with positive consequences of the action that was implemented (i.e. the action they rejected) invested less money than subjects in the no commitment condition. Schoorman and Holahan indicated that this could show that choice,

[2] The reader should realize that here, responsibility is used differently than how Staw (1976) used it. Staw used responsibility to mean responsibility for the choice of an action. In this dissertation, responsibility for choice is referred to as choice and responsibility for outcome is referred to as responsibility.

on its own, may be enough to create the escalation effect, however, the same pattern was *not* seen in the negative outcome condition Hence, the results were not conclusive regarding the differential effects of choice and responsibility Moreover, the study did not include the no-choice but responsible group so it is difficult to make an inference on the separate effects of the two factors

The most important finding from their study was that they showed that the magnitude of escalation was greatest when decision consequences were inconsistent with the expectations. Both under the positive and negative decision consequences, subjects in the positive commitment condition invested more than those in the no commitment condition Hence, contrary to previous research that showed the importance of negative outcomes for escalation, these results suggest that "choice and responsibility for decision outcomes are sufficient for inducing the escalation effect" (Schoorman and Holahan, 1996 790) The authors suggest that what matters is not whether the outcome is positive or negative but whether it is consistent or inconsistent (i e dissonant) with the decision-maker's initial choice This result is consistent with the dissonance theory that points out the necessity of consistency between cognitions and gives an overall support for the justification explanation Yet, this study could not give additional support for the external justification motives as a driver of escalation of commitment

A rather different manipulation of responsibility was used by Leatherwood and Conlon (1987) who designed a study that partially extended and partially refuted the justification explanation They manipulated responsibility and diffusibility of blame (i e the ability or possibility to shift the blame to someone else) In their study, the subjects resumed the role of a vice president of a real estate development corporation who had to choose one of the two available projects to allocate money in Responsibility was induced via the manipulation of the *foreseeability of the setback* Those in the foreseeable condition were in the high-responsibility condition These subjects were beforehand told of the possibility of a setback (a disagreement with the union that could lead to a conflict which in the second round of the experiment constituted the setback) There was no mention of a possible setback in the low-responsibility condition Leatherwood and Conlon found out that responsibility led to escalation only when the subjects could not shift the blame to someone else These results point out that the tendency to escalate is not only a function of responsibility but also of whether the decision-maker is held accountable and whether he can explain the negative outcomes.

Overall, these studies do not give conclusive findings regarding the distinct effects of internal vs external justification motives Yet, support for the justification motives as an explanation for escalation is abundant Feelings of responsibility (either induced by choice or being held responsible for the consequences or both) generate justification motives which are materialized as further commitment in the losing course of action

Summary and focus of this research

In this section, sunk cost effects and justification motives have been discussed as the two possible explanations for escalation Of these, currently, justification explanation gives the firmest and most supported basis for studying escalation Therefore, as the theory that "provides an important explanation of escalation behavior" (Brockner, 1992 58), this thesis will be focusing on the justification explanation

One should realize that both sunk cost effect and justification motives (as well as the framing effects) explain the direct effect of a behavioral factor on escalation The aggregate model of Staw (1997, see figure 2 2), however, emphasizes the relative importance of behavioral factors over perceived project determinants Hence, the focus will now shift to understanding project determinants and their effect on escalation In what follows, first, an overview of experimental research looking into the effect of project determinants on escalation will be summarized Then, a discussion on factors that can affect the perception of project determinants will be given Finally, the attention will be directed at the effect of justification motives, as the chosen behavioral determinant, on the perception of project determinants

2.1.3 Effect of project determinants on escalation of commitment

As explained previously, objective information about the progress and economics of the course of action is classified under project determinants Research studying the role of project determinants can take two perspectives (i) Effect of project determinants (i e information) on escalation and (ii) effect of behavioral determinants on the perception and acquisition of project determinants The first one of these, namely, the effect of different project determinants on escalation has been the main focus of past research Researchers studied how

different values of project determinants affect decisions to escalate or withdraw and showed that while certain values stimulate escalation, others enable withdrawal The results of this line of research do not only show the importance of information for decision-making in escalation situations but also the importance of the second line of research identified above effect of behavioral factors in the perception and acquisition of information items that are classified under project determinants To understand escalation better it is important to identify whether behavioral factors that stimulate escalation also trigger the preference, perception or acquisition of the escalation-stimulating values of the project determinants

Before moving onto explaining how the perception of project determinants can be affected by certain behavioral factors, first, research on the effect of project determinants on escalation will be summarized While doing so, not all the project determinants will be dealt with but a representative sample demonstrating their effect will be used The specific project determinants included in this section are frequency of performance feedback, cause of setback, availability of an explicit goal, efficacy of resources, availability of alternatives and salience of costs

Frequency of performance feedback refers to the continued nature of negative performance information It was shown that if a decision maker receives negative feedback repeatedly then this increases the likelihood of withdrawal Staw and Fox (1977) ran an experiment where the subjects made three successive decisions each followed by negative performance feedback Results showed a main effect for the frequency and a significant interaction effect for frequency by choice The amount invested at the second investment was less than the first investment, however, afterwards, there was an increase and the amount invested at the third investment was more than the second (but still less than the first) Staw and Fox argued that the subjects could have blamed the decreased second investments for the consecutive low performance and hence, increased their investment again Looking at the effects of choice, they noted that choice subjects were either stable in their investment or slightly increased them over time (not statistically significant) whereas no-choice subjects decreased their investment Overall, the results show the "temporal nature of the escalation process" (Staw and Fox, 1977 447) such that choice subjects made unstable investments involving an initial decrease followed by a slight increase in the next decision whereas no-choice subjects made stable investment over time A similar experiment was run by McCain (1986) using an adapted version of the Staw and Fox (1977) case The subjects were asked to

make consecutive decisions for up to ten time periods (they could quit whenever they wanted after completing the first three periods) The results indicated that escalation was limited to the first stages of decision-making Garland, Sandefur, and Rogers (1990) also designed a longitudinal study and showed that the sunk cost effect did not exist in the face of repeated negative feedback After two rounds of negative feedback, subjects de-escalated

These experiments are interesting because they show limits of escalation As time passes and new information on the negative consequences becomes available, decision-makers de-escalate instead of continuing to invest resources in a failing action Hence, repeated investment as well as more frequent controls over a course of action could be factors that restrict escalation (McCain, 1986)

Cause of setback includes information on why the setback, i e negative decision consequences, has occurred It was typically studied as two separate variables foreseeability and persistence of setback Foreseeability of setback refers to whether the setback was foreseeable at the time of the first investment and the persistence of setback signifies whether the setback is expected to occur again if investment continues Staw and Ross (1978) designed an experiment where they looked at the effects of prior failure (with another decision) and persistence of setback The subjects were first asked to make a decision on a case (choice of a dam location in Nigeria) Half the subjects were informed that their decision was not optimal whereas the other half was informed that their decision was the best option available The subjects were then asked to work on another decision (choice of an industrial complex location in Kenya). After choice, the subjects received failure feedback and information on the causes of failure Part of the subjects was informed that the failure was due to endogenous-permanent causes (corruption of local officials) and the rest were informed of exogenous-temporary (unusual rains) causes Next, they were asked a follow-up decision on how much of the available funds they would like to invest in the project The results showed that there was a significant interaction between previous performance and type of cause Under the prior failure condition, the type of cause had a main effect on commitment The least amount of money was invested by those who faced a previous failure and an endogenous cause and the greatest amount of money was invested by those who faced a previous failure and exogenous causes This experiment showed two things (i) individuals might process information differently after a failure and (ii) when people are presented with clear-cut causes they do not get trapped in an on-going escalation of commitment However,

Staw and Ross also cautioned that in real life, the causes of failure are most of the time not as clear And it is known that people might be "subject to a defensive bias that failures are more frequently attributed to exogenous causes" Hence, they called for further research on the "acceptance of endogenous vs exogenous causes, and how such information can be utilized effectively in policy formation" (Staw and Ross, 1978 61)

Availability of an explicit goal and proximity to the goal for the decision process was shown to have an effect on escalation Rubin and Brockner (1975) designed an experiment studying proximity to the goal They asked their subjects to solve a crossword puzzle in order to win a jackpot, the value of which decreased the longer the subjects worked on the puzzle Subjects could use a dictionary but were to share it with four other subjects The proximity to getting the dictionary was manipulated The subjects were told that they were either first or third in the line Escalation (operationalized as the time the subjects spent on solving the puzzle) was more when the subjects were first in the line to get the dictionary than third The closer the subjects were to getting the dictionary the closer they felt to the goal of finishing the crossword and winning the jackpot

Kernan and Lord (1989) looked at the effects of both availability of an explicit goal and the proximity to the goal They designed an experiment where the subjects played the role of an industrial manager facing a production problem unacceptable percentage of defective car phones They manipulated the goal (explicit goal reaching five percent defect target vs general goal correcting the defect problem) as well as the level of failure feedback (small, moderate or large failure), which is analogous to the inverse of proximity to the goal After the first investment, subjects received one of the three performance feedbacks Subjects in the general goal condition committed more resources to the failing course of action than those in the specific goal condition The failure feedback level had no effect on the general goal subjects whereas in the explicit goal group, as the goal discrepancy increased from small to moderate the subjects increased their commitment, but de-escalated when discrepancy became large

In a more recent study, Lant and Hurley (1999) took a different approach to experimental research and used a marketing strategy simulation game They found evidence for escalation of commitment and that "most cases of escalation occurred for cases in which performance, although below the aspiration level, was fairly near this target" (Lant and Hurley, 1999 433)

All these studies showed that proximity to the goal stimulates escalation The closer individuals feel to accomplishing a goal the more committed they become This result is very similar to what Garland and Conlon (1998) called the "goal substitution" effect (see the section on the sunk cost effect)

Efficacy of resources **or** ***probability of future success*** represents the high vs low likelihood that additional investment would help the financial condition of the company Staw and Fox (1977) studied the effects of choice and efficacy of resources Resource efficacy was manipulated by telling the subjects that there was either a high or low likelihood that additional investment would improve the financial condition The results showed that subjects in the high-efficacy condition invested more than those in the low-efficacy condition and choice subjects invested more than the no-choice subjects Bateman (1986) manipulated not only information on the future success probability of the chosen course of action (30% vs 70%) but also of the non-chosen action (30% vs 70%) The results showed that subjects invested more money when the probability of success for the original action was higher The highest (lowest) investment took place when failure was followed by a high (low) future success probability Both of these experiments show that escalation tendencies increase when decision makers have the information that the initially-chosen course of action is likely to succeed with further investment

Availability of alternatives **or** ***opportunity cost*** represents making the decision-makers aware of the associated costs of investing in a course of action at the expense of other alternatives (McCain, 1986) For this variable, there were mixed results Davis and Babko (1986) gave their subjects the possibility to invest money in the non-chosen alternative They could not find any significant effects for alternatives McCain (1986), on the other hand, showed that the number of alternatives had a strong effect on the amount of allocations and limited escalation He argued that availability of alternative investments makes the cost information more salient Within the sunk cost paradigm, Garland and Conlon (1998) manipulated opportunity cost by highlighting an alternative use of funds There was no significant effect of opportunity cost but a significant interaction with project completion When project completion was low, the subjects receiving the opportunity cost information were less likely to allocate additional funds than when project completion was high

These experiments give mixed findings for the effect of alternatives on escalation In the McCain experiment, the subjects did not only receive alternatives but also information

that if chosen, the performance of the alternatives would have improved This way the uncertainty around the decision was alleviated Even though this is an encouraging outcome, in real life, uncertainty cannot always be taken away For instance, performance feedback for the non-chosen alternative is, most of the time, not available One could speculate on what would have happened if the alternative was implemented instead, but such speculations can easily be biased by the (committed) decision-makers Overall, based on these limited number of experiments, one could argue that for information on alternatives to generate de-escalation, more information than just naming the alternatives might be necessary This proposition, however, remains to be tested

Summary: effect of project determinants on escalation of commitment

The results of past research summarized in this section show the power of information in generating escalation or de escalation depending on its content However the limitations of these experiments should be kept in mind In all these experiments, the subjects were given only one value for each type of information (e g only exogenous causes or only endogenous causes) Moreover, they were not given the opportunity to show their preference for information If they were, would they have chosen and processed the information "objectively"? Or would behavioral factors, such as justification tendencies, have played a role in biasing the information? Answers to such questions are crucial to understanding the escalation process It should be pointed out that whether information contributes to further commitment or withdrawal depends on its content, how it is perceived by the decision-maker, and how much importance the decision-maker gives to it And based on the model by Staw (1997) (figure 2 2), one could propose that what a decision-maker perceives and deems as important can be a function of his or her psychological state and/or the environment he or she is in This constitutes the third set of effects, namely, the effect of behavioral factors on the perception of project determinants, identified from this model at the end of section 2 1 1 To develop this line of reasoning further, first, factors affecting the perception of information need to be understood To facilitate this understanding, in the next section, the importance of relevant information for decision-making and difficulties in identifying relevant information will be discussed Then, the links between escalation of commitment and information perception will be highlighted at the end of section 2 2 and chapter 3

2.2 Relevance of information and difficulties in identifying relevant information

Information is one of the key components of (strategic) decision-making Ungson, Braunstein, and Hall (1987 117) defined information as the "stimuli (or cues) capable of altering an individual's expectations and evaluation in problem solving and decision-making" Decision-makers spend much time in gathering, storing, analyzing, and communicating information during their decision-making activities Some researchers even argued that information gathering and processing are more crucial to the success of an organization than the actual decision choice (Pfeffer and Salancik, 1978, Starbuck and Milliken, 1988) To form a judgment on the current situation and decide on the goodness of a strategy, decision-makers need to collect and process information In order to make good decisions, two types of information are needed (Daft, Sormunen, and Parks, 1988) external, i e environmental, information (to be able to detect trends and changes in the environment) (Daft and Weick, 1984, Kiesler and Sproull, 1982, Milliken, 1990) and internal information (to evaluate performance) (Cowan, 1986, Thomas, Clark, and Gioia, 1993) The mixture of internal and external information is necessary for decision-makers to identify the gaps between its strategy and the environment as well as the necessary adaptation(s) to their strategy

Decision-makers acquire information through identifying the relevant indicators to be scanned and collecting the information Then, through information processing, they analyze the collected information and classify it as (ir)relevant The quality of information processing, also referred to as interpretation (Daft and Weick, 1984, Thomas et al , 1993), is very crucial to the quality of the decisions made Finally, the output of the information acquisition and processing stages is the judgment that determines the action to be implemented (Hogarth, 1980, Hogarth and Makridakis, 1981)

In terms of linking information with decision quality, the amount of information available has been associated with faster perceived problem identification and faster decision-making (Huber, 1990, Leidner and Elam, 1995), but its relation to performance has been unclear The availability of a lot of information increases the confidence in judgment but not necessarily its utility (Payne 1976, Hogarth and Makridakis, 1981) Researchers have also identified that decision-makers scan those parts of the environment that have greater strategic uncertainty

(Daft et al., 1988; Auster and Choo, 1994; Elenkov, 1997; May, Stewart, and Sweo, 2000) and that are perceived as important (Aguilar, 1967; Feldman and March, 1981). Perceived importance of information is related to the relevance of the information for the decision being made. Many researchers have emphasized the importance of gathering good, relevant information. According to Aguilar (1967), information is perceived as useful only if it is perceived to be relevant. Feldman and March (1981: 172) stated "the value of information depends in a well-defined way on the information's relevance to the decision to be made [...] Information has value if it can be expected to affect choice". There is indeed evidence indicating that increased amounts of relevant information lead to better decisions. Increased amount of irrelevant information, on the other hand, decreases the decision quality because it reduces the ability to identify the relevant information (O'Reilly, 1980). And not having the relevant information can lead to undesired consequences such as decision-makers missing on important information, for instance, on competitors or customers (Levinthal and March, 1993; Gilad, 1996).

Even though the importance of information for decision-making is recognized and there is agreement that scanning should target relevant information, as early as 1967, Aguilar (1967: 13-14) identified "the failure to recognize the relevance of information" as one of the two factors[1] that make scanning unreliable. One restraining factor is the enormous amount of data that can be collected (Choudhury and Sampler, 1997). This leads to information overload. As the load increases, it becomes increasingly difficult to accurately identify the relevant cues (O'Reilly, 1980). Yet, another restraint is set by the decision-makers. Generally, the amount of available information exceeds the human information acquisition and processing capacity. Both due to this limited capacity and limited resources such as time and money, decision-makers cannot scan all the available information (Daft et al., 1988; Saunders and Jones, 1990; Kiesler and Sproull, 1982). As a result, individuals acquire information selectively rather than comprehensively (Hogarth, 1980). They use filters to select the information to pay attention to (Choudhury and Sampler, 1997; Kiesler and Sproull, 1982; Staw, Sandelands, and Dutton, 1981). These filters, which are used to let in only the information that is perceived to be relevant, are formed based on past experiences, mental models, and organizational functions of the individuals. Hence, the knowledge structures of prior behavior become "the constructs against which new information is tested for relevance" (Kiesler and Sproull, 1982: 557). It

[1] The second factor is "the distorted reproduction of information"

has been argued and shown that people pay more attention to stimuli that are consistent with their existing mental models, beliefs, and desired conclusions (Kiesler and Sproull, 1982, Cowan, 1986, Day and Lord, 1992, Jermias, 2001, Jonas, Schulz-Hardt, Frey, and Thelen, 2001)

This tendency to look for consistent, confirming information has been studied under different labels such as selective perception, confirmation bias, confirmatory information search, and selective exposure to information Hogarth and Makridakis (1981 117) identified the information acquisition stage as the source of the selective perception bias and defined the bias to be composed of the following

- "People structure problems on the basis of their own experience,
- Anticipations of what one expects to see bias what one does see,
- People seek information consistent with their own views/hypotheses, and
  People downplay/disregard conflicting evidence'

A specific aspect of selective perception, related to the first part of Hogath and Makridakis' definition, has received most of the attention In their influential work, Dearborn and Simon (1958) studied whether functional work areas affect the way the executives perceive problems Their findings supported their hypothesis that "executives will perceive those aspects of a situation that relate specifically to the activities and goals of their department" (Dearborn and Simon, 1958 142) After 30 years, Walsh (1988) replicated and extended the work of Dearborn and Simon Drawing on a large body of literature, Walsh (1988) used the argument that managers' belief structures (i e simplified mental models or representations) as determined by their functional experience would affect both the problem identification and the scope of information used in the decision-making process Walsh failed to find support for his hypothesis and the findings of Dearborn and Simon He even argued that 'it is not at all clear that Dearborn and Simon's data support their conclusion" and that the "actual results of the two studies do not appear to be contradictory" (Walsh, 1988 889) Waller, Huber, and Glick (1995 965), on the other hand, found out that "functional background does not affect the perception of changes in organizational environments but does effect the perception of changes in organizational effectiveness" Beyer, Chattopadhyay, George, Glick, and Pugliesee (1997) investigated the matter further by a "systematic replication and extension of" the studies of Dearborn and Simon (1958) and Walsh (1988) They argued that looking at only the direction (i e content that matches the functional experience) of information

processing is a limited measure of selective perception and that the breadth of information processing should also be considered Regarding the previous studies, they showed that the difference between the results were due to differences in the experimental procedures In the Walsh study, the subjects were encouraged to think of multiple problems whereas in the Dearborn and Simon study, they were asked to identify the most important problem Regarding the selective perception bias, they found support for the conclusion that functional experience tends to narrow cognitive processes but in a different way than originally accepted They suggested that "functional experience does not increase managers' attention to related information but instead tends to restrict the areas of information to which they pay attention" (Beyer et al , 1997 730) Since this relates not to what individuals perceive but to what they do *not* perceive, the authors called the phenomenon selective *imperception* and explained that to narrow perception "it is more likely to direct attention *away* form unrelated areas of information than toward related areas" (Beyer et al , 1997 734, italics in original) Even though no final reason was offered for selective imperception, they considered certain possibilities For instance, following Tversky (1972), they indicated that narrowing might be occurring by eliminating single aspects decision-makers consider peripheral rather than focusing on the central aspects Another possibility could be that people switch between schema-consistent and inconsistent information "When confronted with complex stimuli, they tend to look, in what is called controlled information processing, for schema-consistent information first Once they have confirmed their schemata, they turn their attention away from schema-consistent information to schema-inconsistent information, but continue to monitor schema-consistent information in an automatic, less demanding process" (Beyer et al , 1997 732) The authors argued that managers might be paying attention to consistent information only during an initial period of search and/or they might need relatively little information for confirmation

Overall, this line of work on selective perception is inconclusive regarding the effect of belief structures on information processing demands and problem identification Bunderson and Sutcliffe (1995) found the lack of support for the functionally-biased perception surprising and counter-intuitive and argued that other variables might explain how work history affects perception They indicated that two factors could be limiting selective perception accountability (if a person knows that she is being held accountable she will be more vigilant in her analysis) and strategy (decision-makers will notice those issues and events that are related to the competitive strategy of the firm) These two factors might indeed limit the

selective perception induced by functional background They might also introduce other forms of selective perception Hogarth and Makridakis' (1981) definition also indicates that people seek confirming evidence while disregarding conflicting evidence Nisbett and Ross (1980) pointed out that individuals have the ability to bias facts in the direction of previously accepted preferences Being accountable for performance could force people to rely on information showing that they are not to blame or information indicating that their performance is good Believing in a strategy, on the other hand, could make people focus on strategy-confirming information Such selective information preferences have been studied under headings as confirmation bias and selective exposure to information[4] In what follows each of these will be discussed separately

Initial research on *confirmation bias* was in the context of hypothesis testing Various researchers (e g Snyder and Swann, 1979, Darley and Gross, 1983) showed that while testing a hypothesis people only tried to confirm their hypothesis In an experiment Wason (1960 1968) presented his subjects with a rule-discovery task He presented the subjects a set of numbers and informed them that the numbers fit a given rule Subjects were then asked to find the rule and to do so, they could offer any number of combinations they wanted Typically, the subjects offered sets of numbers that fitted their own hypothesis of the rule with the hope of getting confirmation for their hypothesis This phenomenon was labeled confirmatory hypothesis testing to indicate that people when testing a hypothesis, ask questions that are consistent with their hypothesis Wason (1968) proposed that a disconfirmation strategy is a more appropriate strategy for hypothesis testing Klaymand and Ha (1987), on the other hand, indicated that whether confirmation or disconfirmation strategy is better depends on the "characteristics of the task at hand" (Klayman and Ha, 1987 225) They called the confirmation tendency the positive test strategy and showed that this strategy of hypothesis testing does not necessarily guarantee the confirmation sought and that "under some circumstances, positive testing may be the only way to discover falsifying instances" (Klayman and Ha, 1987 225)

Confirmation bias has also been applied to the decision-making context In these situations, however the bias has a slightly different meaning It refers to using information such that the hypothesis that is being tested appears to be true Skov and Sherman (1986) indicated that individuals can gather confirming information to bias the interpretation of the information or

[4] Other labels were also used motivated reasoning or motivated skepticism biased assimilation

search for information increasing the likelihood of confirmation so that the hypothesis appears to be true Confirmation bias in decision-making and the one referred to in this dissertation means "requesting information that supports a pre-selected alternative" (Jonas et al , 2001 557) Hence, the decision-maker searching for the information *knows* that he or she will reach the desired confirmation Kunda (1990 480) stated that "people are more likely to arrive at conclusions that they want to arrive at, but their ability to do so is constrained by their ability to construct seemingly reasonable justifications for these conclusions" Confirming information search can provide the necessary information to form this justification However, preference for information biased in favor of a preferred conclusion or alternative would make the identification of relevant information less probable Ditto and Lopez (1992 569) pointed out that confirming information is perceived as "valid, accurate, and internally caused" whereas disconfirming information is perceived as "less valid, less accurate, and externally caused" Lord, Ross, and Lepper (1979 2099) indicated that the bias can manifest itself as "a propensity to remember the strengths of confirming evidence but the weaknesses of disconfirming evidence, to judge confirming evidence as relevant and reliable but disconfirming evidence as irrelevant and unreliable, and to accept confirming evidence at face value while scrutinizing disconfirming evidence hypercritically" All these three tendencies would cause disconfirming information to be perceived as irrelevant regardless of its actual merits Such a bias may be dangerous since warning signs, threats, and opportunities might be missed (Jonas et al , 2001)

Information preferences regarding a certain alternative or decision have also been researched under the name *selective exposure to information* Even after having made a decision people keep on searching for information However, this search is not impartial "People prefer information that supports their decision (hypothesis, beliefs, standpoints, etc) and avoid information that contradicts these cognitions" (Frey, 1986 42) It has been shown that making a choice and being committed to that choice are factors that stimulate the bias In experimental settings, it was shown that after performing a dull task, as opposed to those who were forced, people who willingly performed the task desired supportive information of their choice and avoided information that was non-supportive of their choice (Frey and Wicklund, 1978, Cotton and Hieser, 1980) Commitment to a decision was shown to have similar effects Brock and Balloun (1967) exposed smokers with audiotapes of information with pro-smoking communication and anti-smoking communication Both tapes were disturbed with some noise which the subjects could eliminate by pressing a button The smokers clarified the

pro-smoking communication more whereas non-smokers clarified the anti-smoking communication The same experiment was replicated with church-goers yielding the same results It was also shown that people writing an essay favoring an alternative (Schwarz, Frey, and Kumpf, 1980) or making a behavioral commitment (Frey and Stahlberg, 1986, in Frey, 1986) subsequently preferred favorable information supporting their commitment More recently, the existence of confirming information search was shown in different fields For instance, Cloyd and Spilker (1999, 2000) showed that tax professionals focus on positive cases (i e those that confirm their client's preferred position) at the expense of negative cues Jonas et al (2001) showed that once committed to an alternative (whether alternative healing methods should be covered by health insurances), confirmation bias took place both in sequential and simultaneous information search (with more bias in sequential search) Russo, Medvec, and Meloy (1996) also showed that for decision-makers to focus on confirming information, a belief or a decision was not necessary Even in the absence of a pre-existing preference for an option, confirmation bias took place They reasoned that confirmation starts while a preference is being developed and offered two potential explanations desire to a) maintain consistency and b) to reduce effort

Overall, this line of research indicates that individuals when committed to a decision prefer confirming information over disconfirming This preference can be mediated by factors such as the decision-makers' past beliefs, mental models, prior commitments, and work areas As indicated, prior choice and commitment stimulate selective exposure to confirming information The same factors also stimulate escalation tendencies which basically form a special case of commitment to a prior choice The difference of escalation situations from the examples explained in this section is two-fold First, escalation situations involve commitment to an on-going course of action Second, there is indication that this action to which the decision-maker is committed is failing In selective perception research, normally, people did not receive feedback about their choices (Jermias, 2001) The question is *would such confirmation tendencies exist after negative consequences are experienced for actions to which decision makers are committed?* In the next chapters, this question will be dealt with

2.3 Summary

This chapter reviewed two literature streams relevant for this research escalation of commitment and selective search for confirming information

In explaining escalation of commitment (section 2 1), based on the aggregate model of escalation proposed by Staw (1997), three important relations were identified (i) the effect of behavioral determinants on escalation of commitment, (ii) the effect of project determinants on escalation of commitment, and (iii) the effect of behavioral determinants on the perception of project determinants It was stated that the first two effects have been well-studied and understood Section 2 1 2 focused on the first relation and included an overview of the effect of two most important behavioral determinants on escalation of commitment sunk cost effects and justification motives (internal and external) Of these, justification motives were chosen to concentrate on in this thesis due to its robustness and dominance in explaining escalation In section 2 1 3, the focus was on the second relation and a summary of the effects of various project determinants on escalation of commitment was given This literature overview highlighted that certain contents of information items stimulate commitment whereas others lead to withdrawal It was then identified that the third relation from the model of Staw (1997), namely the effect of behavioral determinants on the perception of project determinants, had not yet been researched

In section 2 2, attention was on the importance of relevant information for good decision making It was explained that even though a thorough information search is desired, due to cognitive and resource limitations such search is not possible Various factors hinder the identification of relevant information Selective exposure to information, or confirmatory information search, was identified as important factor making the recognition of relevant information extra difficult

In the next chapter, the link between justification motives, as the chosen behavioral determinants of escalation, and selective exposure to information, which affects which information decision-makers perceive as relevant, will be established further The conceptual model and the hypotheses for the research will be presented

Chapter 3

Conceptual framework and research questions: Selective exposure to information in escalation situations

Chapter 2 provided a literature review on two topics: (i) escalation of commitment and the justification motives as a cause of escalation and (ii) selective exposure to information as a factor affecting the perception of information relevance. In this chapter, the link between these topics will be established further. Identifying and using relevant information is important for decision-making in general. Also, in escalation situations, information, as classified under the project determinants of escalation, plays an important role. As pointed out in chapter 2, different values of project determinants can either stimulate escalation or lead to withdrawal. As such, the content (or values) of the information used is very important for making a sound decision following the receipt of negative performance feedback. At the same time, however, identification and perception of relevant information is not without problems. As Staw (1997) indicated in the aggregate model of escalation, behavioral determinants of escalation can affect the perception of the project determinants. In this chapter, this effect will be the focus[5]. That is, the nature of the relation between justification motives, as a behavioral determinant of escalation, and selective exposure tendencies, as a factor affecting the perception of (the relevance of) project determinants, will be explained. At the end of the chapter, some methodological issues will be discussed.

3.1 Research focus: Selective exposure to confirming information under escalation conditions

This section focuses on the occurrence of selective information search under escalation of commitment situations. Dissonance theory will be used to explain why decision-makers, in escalation situations, can be expected to search for information selectively and prefer

[5] The other topic of this dissertation, namely System Dynamics modelling for de-escalation, will be explained and studied in chapter 6.

confirming information over disconfirming In what follows, dissonance theory and its relation to escalation of commitment will be explained, the conceptual framework and the hypotheses will be developed

3.1.1 Dissonance theory, selective exposure to information, and escalation of commitment

Self-justification theory states that the need to justify prior choice may cause a decision-maker "to increase his commitment in the face of negative consequences" (Staw, 1976 29) As explained in chapter 2, having chosen and hence, feeling responsible for a decision, people feel the need to justify their previous choice at the receipt of negative decision consequences In order to do so, decision makers increase their commitment to the decision and keep on investing in the same alternative (see figure 3 1)

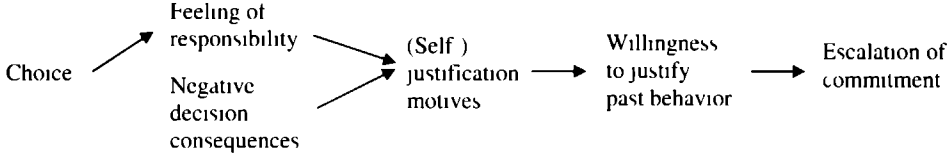


Figure 3.1: Justification motives and escalation of commitment

The justification explanation was derived from Festinger's dissonance theory (Festinger, 1957, 1964) which indicates that people would like to avoid dissonance and have consistency amongst their cognitions These cognitions can be about behaviors, perceptions, attitudes, beliefs, and feelings (Harmon-Jones and Mills, 1999) Any mismatch would lead to dissonance There are different paradigms in dissonance research indicating several sources for dissonance arousal (Harmon-Jones and Mills, 1999) The free-choice research paradigm states that making a decision is likely to cause dissonance arousal since negative aspects of the chosen alternative and the positive aspects of the rejected alternative are inconsistent or dissonant with the decision (Frey, 1986, Harmon-Jones and Mills, 1999) The other sources of possible dissonance arousal are exposure to information inconsistent with beliefs (the belief-disconfirmation paradigm), engaging in an unpleasant activity in order to reach a desired outcome (the effort-justification paradigm), and saying something that is inconsistent with one's belief or attitude (the induced-compliance paradigm)

Research on dissonance mainly focused on the conditions necessary for dissonance arousal The first version (1957) of Festinger's theory focused mostly on 'the perception of inconsistency among cognitions' as the cause of dissonance arousal Later, researchers demonstrated that a particular set of conditions need to be realized to cause the arousal of dissonance The factors that contribute to dissonance arousal are the perceived free-choice (Brehm and Cohen, 1962, Beauvois and Joule, 1999), initial commitment to behavior, aversive consequences caused by the behavior, and perceived responsibility for the aversive consequences (Eagly and Chaiken, 1993, Cooper, 2007) Figure 3 2 shows the sequence of events that lead to dissonance arousal When people perceive that they caused an aversive, irrevocable event (Cooper and Fazio, 1984) they search for responsibility for this consequence If they feel responsible then dissonance is aroused The feeling of responsibility is related to both free choice and foreseeability of the consequences "In general, people will be able to absolve themselves of responsibility for an aversive consequence if they believe they had no choice but to behave as they did and/or the consequence was unforeseeable when they made the choice" (Cooper, 2007 76)

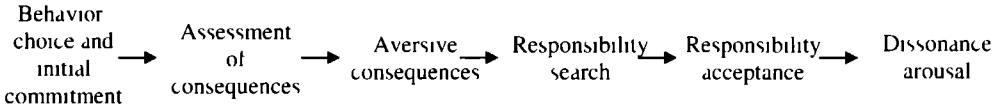


Figure 3.2: The sequence of events leading to the arousal of dissonance (Cooper and Fazio, 1984, Eagly and Chaiken, 1993, Cooper, 2007)

Since dissonance is an unpleasant cognitive state, once it is aroused, an individual would be motivated to reduce it The greater the magnitude of the dissonance, the greater is the pressure and will to reduce it The magnitude of dissonance is a function of the importance of the dissonant cognitive elements and the relative number of dissonant and consonant elements (Leippe and Eisenstadt, 1999) Hence, the dissonance-reducing mechanisms also involve the number of dissonant and consonant elements and their perceived importance Festinger (1957) identified three modes of dissonance reduction (Harmon-Jones and Mills, 1999, Leippe and Eisenstadt, 1999) (i) Changing or removing one of the dissonant cognitions This can be achieved by changing the behavior or changing the belief, (ii) adding new consonant elements, and (iii) reducing the importance of dissonant cognitions and/or increasing the importance of the consonant cognitions An example given by Festinger (1999) illustrates all

these elements A smoker will feel dissonance when he learns that smoking is bad for health He can reduce dissonance by changing his behavior (first mode), i e by stopping smoking Changing the behavior is "one of the major avenues of dissonance reduction" (Festinger, 1999 384) The smoker can also change his cognition about the effect of smoking on health and believe that smoking does not have a bad effect on health (first mode) He can do so, for instance by discrediting the information source The smoker might also add new consonant elements (second mode) by looking for positive effects of smoking, e g smoking keeps him from gaining weight Or he could reduce the importance of the dissonant cognition (third mode) by believing that the risk to health due to smoking is much lower than the danger of car accidents He can also increase the importance of consonant cognitions (third mode) by believing that the enjoyment from smoking is a very important part of life Recently, Gosling, Denizeau, and Oberle (2006) proposed a new mode of dissonance reduction They showed that denial of responsibility reduced the negative affective state (shame, guilt, self-criticism, anger and disgust with oneself) induced by dissonance

A way of enabling the second and third modes of dissonance reduction was discussed by Festinger under the heading of selective exposure to information For decision-making situations, Festinger (1999 478) hypothesized that "post-decisional dissonance would lead decision-makers to selectively *seek out* decision-congruent information and *avoid* exposure to decision-incongruent information" Thus, the dissonance theory predicts that people prefer information that supports their decisions and avoid information that contradicts them and this "process of dissonance reduction should lead to an increase in the desirability of the chosen alternative and a decrease in the desirability of the rejected alternative" (Jermias 2001 143) Such *selective exposure* to information is an important aspect of Festinger's theory The objective is to decrease the discrepancy between the dissonant cognitions (Frey, 1986) Research over the years has shown that choice, commitment, and intensity of dissonance are important in influencing information selectivity (Brehm and Cohen, 1962, Frey, 1986)
Aronson's (1999 111-112) writing clearly states why dissonance theory is useful for explaining the reasons for escalation of commitment "Efforts to reduce dissonance involve a process of self-justification because, in most instances, people experience dissonance after engaging in an action that leaves them feeling stupid, immoral, or confused Moreover, the greater the personal commitment or self-involvement implied by the action and the smaller the external justification for that action the greater the dissonance and, therefore, the more powerful the need for self-justification" This is also the reasoning behind the self-justification

explanation of escalation; prior choice, feeling of responsibility, and initial commitment coupled with negative decision consequences for the chosen alternative would generate dissonance inducing self-justification needs. A committed decision-maker achieves self-justification by re-investing in the same course of action, i.e. by repeating the behavior.

If individuals escalate due to felt dissonance and to (self-) justify a previous choice then one would expect that they would also want to reduce dissonance and to do so, engage in activities that are consistent with those predicted by the dissonance theory. Given the nature of escalation situations, decision-makers keep on engaging in the same activity that initially caused the aversive consequences. This act of on-going commitment to the same course of action fulfills the justification needs but precludes behavior change as a possible mechanism for reducing dissonance. Hence, to reduce dissonance, an escalating decision-maker would have to make use of the mechanisms other than behavior change, as shown in figure 3.3.

More specifically, a committed decision-maker willing to decrease dissonance and justify previous and current investments in a failing alternative can be expected to do one or more of the following (see figure 3.3). First[6], s/he might strive to change the dissonant cognition, namely behavior or belief. Given that behavior change is not taking place, belief can be changed by denying the setback. Information can be distorted in such a way that the setback might not look as bad or the perception of the aversiveness of the outcome can be changed (Eagly and Chaiken, 1993). This can also be done by discrediting the information source giving the setback. Second, the decision-maker might add new consonant elements by selectively searching, acquiring, processing, and using information confirming the goodness of the strategy. Third, s/he might reduce the importance of the dissonant elements by discrediting information sources from which disconfirming information comes or by persuading him or herself that the rejected alternative is much worse than it was initially perceived. This can be done by finding additional justification by exaggerating the unattractiveness of the rejected alternative. Fourth, s/he might increase the importance of consonant elements by favoring such sources or by persuading him or herself that the chosen alternative is actually much better than it was initially perceived. This can be done by finding additional justification by exaggerating the attractiveness of the chosen alternative. Finally,

[6] The order in which these alternatives are presented does not signify any priority. The order used by Festinger (1999) is adhered to. It is possible that, depending on the situation, one of these is more preferred way of dissonance reduction than the others. This prioritization of dissonance reduction mechanisms is beyond the scope of this research.

the decision-maker might absolve him or herself from the responsibility by perceiving that the setback was caused by someone else or external forces such as economic situation or governmental interference.

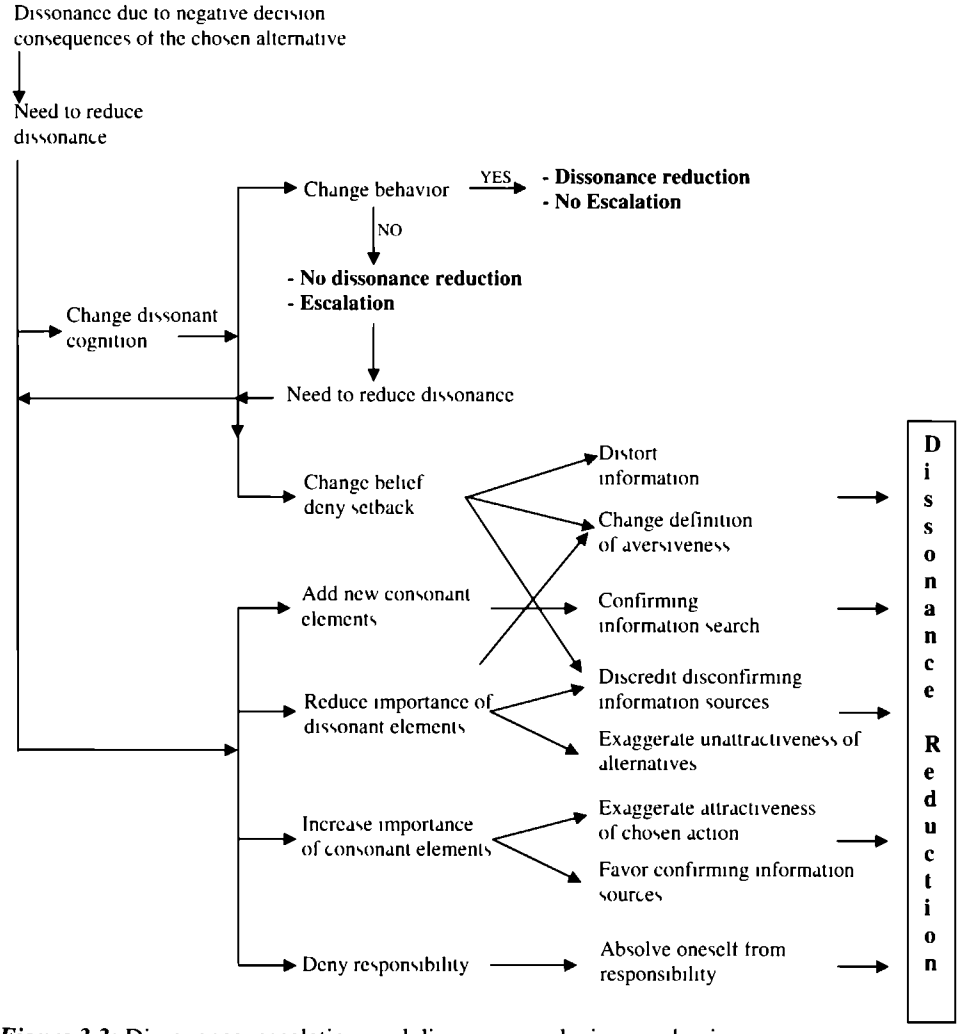


Figure 3.3: Dissonance, escalation, and dissonance reducing mechanisms.

In the escalation of commitment research domain, interest in dissonance reduction through selective exposure to information as a result of self-justification motives did not receive much attention. Theoretically, the possibility for selective exposure was stated by Staw (1981: 583): "It can be expected that motivation to justify decisions will affect the search for and storage of

information by individuals". Staw (1981) indicated selective filtering of information as a possible way of maintaining commitment to a policy or a course of action. Staw and Ross (1987) classified information processing biases as a psychological determinant. As mentioned in chapter 2, in the model of Staw (1997) (see figure 2.2), the possible effects of behavioral factors on the perception of project determinants were recognized: "Behavioral variables can also be seen as influencing the perception of project economics" (Staw, 1997: 208). In the empirical domain, there is some evidence that decision-makers bias decision consequences. For instance, it has been shown that committed decision-makers ignore negative feedback or bias its interpretation such that it is seen as more positive (Boulding, Morgan, and Staelin, 1997; Schmidt and Calantone, 2002). Keil, Depledge, and Rai (2007) showed that under escalation conditions, selective perception affects problem recognition. Regarding the effects of behavioral determinants on information preference, there have been two studies. Conlon and Parks (1987) found that people who were responsible for the choice of a course of action and received failure feedback were more interested in retrospective information than prospective information. Caldwell and O'Reilly (1982) looked at the effect of choice and responsibility on information search. They showed that responsible subjects were more likely to emphasize the positive aspects of their choice. These studies show the interest of the decision-makers in retrospective and favorable information. However, from these studies, it is not possible to make conclusions on the occurrence of selective exposure to information under *escalation* conditions. Conlon and Parks presented their subjects with the information choice prior to the second decision; hence, before escalation could take place. In the Caldwell and O'Reilly's study, on the other hand, the subjects did not make a second investment decision at all, so it is not clear whether escalation took place.

As a result, to the best of the author's knowledge, a direct test of whether selective exposure to confirming information occurs alongside escalation does not yet exist. Information preference of committed decision-makers under escalation situations still needs further investigation. Brockner and Rubin (1985) drew attention to the fact that if decision-makers fail to consider disconfirming evidence it would be difficult for them to correct a faulty decision and hence avoid loss escalation. The commitment of individuals to a certain action would induce a strong motivation to defend their decision which, in turn, can induce a strong bias towards supporting information (Jonas et al., 2001). As such, selectively focusing on confirming information and avoiding disconfirming information can be seen both as a

consequence of escalation and one of its causes If, as Staw (1997) predicts, the decision to escalate is indeed determined by the interplay between the behavioral factors and the perceived information, i e project determinants, and if this perception is shaped by the behavioral factors then decision-makers can selectively expose themselves to information and/or bias the incoming information to enable justification for their actions and decrease dissonance In such a situation, withdrawal could become an unlikely outcome of the decision process and decision-makers can get trapped in a vicious circle of escalation and information biasing Figure 3 4 shows these effects Motivation to justify previous choice would induce tendency to selectively expose oneself to confirming information which would lead to the use of confirming information that further stimulates commitment and further justification motives The result of this process would be an on-going escalation of commitment to the failing course of action

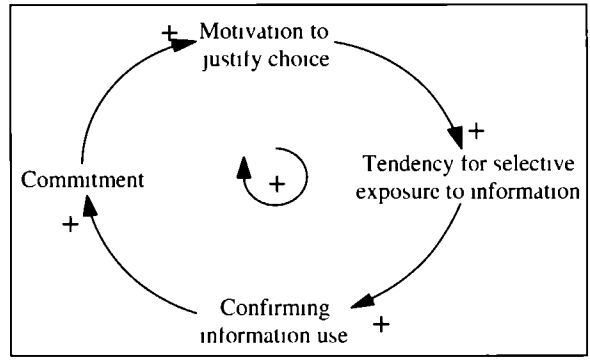


Figure 3.4: Vicious circle of escalation and information biasing

For instance, while collecting information to identify what the causes of the setback were, a decision-maker is equally likely to come across the following conflicting two types of information the setback was caused by 1) external factors, i e reasons that are exogenous to the decision-making mechanism and the strategy implemented or 2) internal factors, i e reasons that are endogenous to the decision-making mechanism and the strategy implemented Collecting information on internal, endogenous causes would mean accepting the blame for the negative consequences and that the chosen strategy was not good On the other hand, by collecting information on external, exogenous cases, the decision-maker can absolve him or herself from the responsibility for negative consequences as well as clear the name of the chosen strategy Hence, preferring information on external causes would be a very good way of reducing dissonance and justifying previous actions simultaneously However, such a preference could lead to the incorrect decision of escalation if the causes were actually internal As such, selectively using confirming information would answer both needs of the decision-maker dissonance reduction and justification If such a bias in information search

indeed occurs then better information search could be used as a possible de-escalation strategy[7]. Thus, understanding the nature of information preference in escalation conditions can help devise better information processing and decision-making strategies that could help avoid unnecessary escalation.

The main argument of this research is that when faced with negative consequences, committed decision-makers will not only justify choice by means of escalation but will also try to reduce dissonance by means of selectively exposing themselves to confirming information. These relationships are shown in figure 3.5. Following this line of reasoning as well as Staw's (1997) model, the focus will be on investigating whether the justification motives, as an important behavioral determinant, that stimulate escalation also influence the perception of project determinants such that the decision-makers selectively expose themselves to confirming information. That is, whether they select or prefer information that helps them avoid the setback and/or information that absolves them from responsibility and/or information that confirms the goodness of the previously chosen alternative and/or the inferiority of the previously rejected alternative.

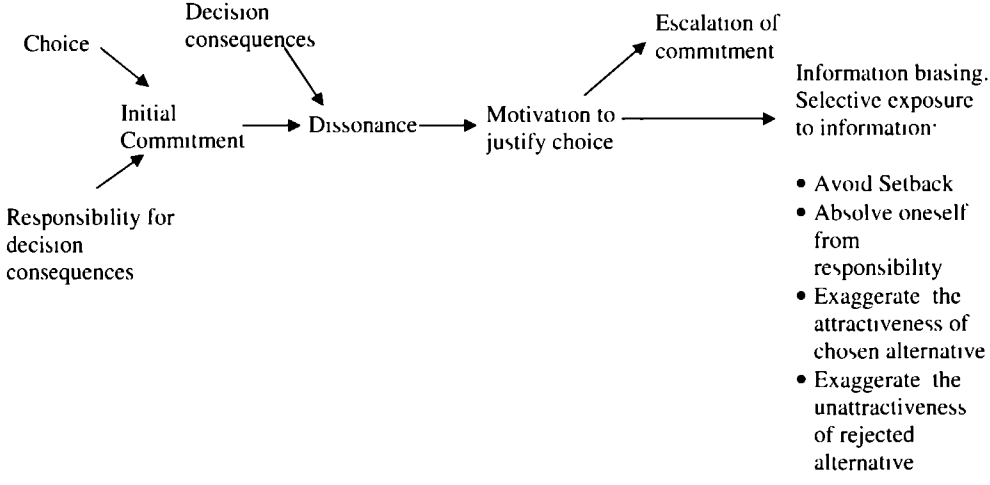


Figure 3.5: Justification motives, escalation of commitment, and selective exposure to information.

[7] Selective exposure to information is a means of decreasing dissonance. If in an escalation situation, selective exposure does not take place and the information attended to leads to de-escalation then dissonance can be reduced by means of behavior change, the most powerful way of reducing dissonance. On the other hand, searching for and selecting unbiased information does not take away the possibility that information is distorted and/or represented in biased ways. Such situations are likely to lead to further escalation. In those cases, dissonance reduction would be achieved since the distorted information would be in alignment with the behavior of continued commitment.

The justification motives are aroused by the same factors that lead to dissonance arousal. Thus, this research will focus on these factors: choice, responsibility for the decision consequences, decision consequences, and initial commitment. It is accepted that these factors lead to dissonance arousal. However, their distinct effects on escalation of commitment are not that clear. Of these four factors, researchers have shown that choice induces internal justification motives and under negative decision consequences, lead to escalation. There is also evidence, however, that justification needs might not only be induced by choice coupled with negative consequences but more generally, by the mismatch between initial decision choice and consequences (e.g., positive consequences for an alternative not chosen can also produce justification motives). Responsibility for decision consequences induces the external justification motives. There are, however, mixed findings regarding its effect on commitment. Initial commitment, on the other hand, has not received special attention in the escalation of commitment literature since in general, it is assumed that choice leads to or even replaces initial commitment. Therefore, this research will focus on all these factors and investigate their role in escalation of commitment as well as the perception of the project determinants under escalation situations. Figure 3.6 shows the conceptual model for the research including only the direct relations that will be tested in this dissertation.

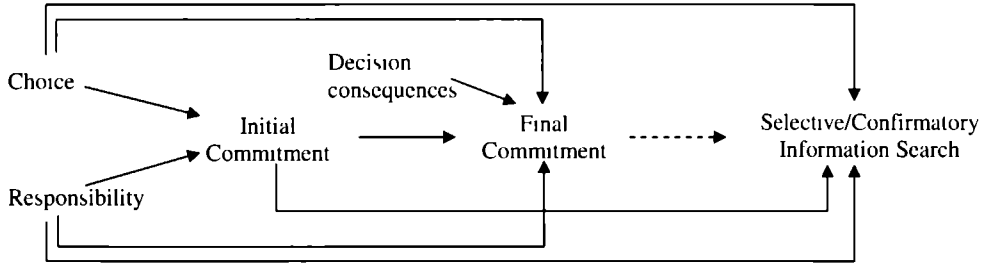


Figure 3.6: Conceptual model for the research: relationships to be investigated.

The research question and the sub-research questions are as follows:

To what extent do factors that stimulate justification motives lead to selective exposure to confirming information in escalation of commitment situations?

i. To what extent does initial choice, as a psychological determinant of escalation of commitment, lead to preference for confirming information?

ii To what extent does responsibility for decision consequences, as a social determinant of escalation of commitment, lead to preference for confirming information?

iii To what extent does initial commitment, as an antecedent of escalation and dissonance arousal, lead to preference for confirming information?

iv To what extent do decision consequences lead to the preference for confirming information?

Summary: In this section, the factors leading to selective exposure to confirming information were discussed and the conceptual model was developed In the next section, the object of this information search, namely the information categories, in which selective exposure can take place, will be discussed and the hypotheses will be developed

3.1.2 Hypotheses: Escalation of commitment and selective exposure to information

Information comes in various categories Decision-makers can collect information on various aspects of an on-going project While focusing on selective exposure, it would be interesting to look at different categories of information because it is possible that search for confirming information does not takes place in all information categories but only in those in which the individuals see the opportunity for justification and dissonance reduction By paying special attention to the information categories that are likely to be used for justification purposes during scanning activities, quality of the decision-making process can be improved

Given that the project determinants include the so-called objective information on various aspects of the project, information categories classified under project determinants can be used to identify the different types of information that can be used by the decision-makers By using the list of project determinants and related research on escalation of commitment, the following categories were identified as possible sources for decision-makers

1) Predicted future performance This category refers to the likelihood of success or failure that would be achieved with the strategy in case the decision-makers reinvests in it (Staw and Fox, 1977, Conlon and Wolf, 1980, Bateman, 1986)

2) Factors that contributed to the decision consequences This category refers to the causes of the achieved performance and can include two items
   a Locus of causality – internal versus external causes for failure (Staw and Ross, 1978) This is information that focuses on linking the performance of the strategy to internal (i e endogenous) versus external (i e exogenous) causes
   b Stability of causes - Temporal aspects of causes for failure (Leatherwood and Conlon, 1987) This is information that stresses whether the main causes of the decision consequences were permanent or temporary
3) Alternative strategies (Bateman, 1986, Northcraft and Neale, 1986) This category refers to the (expected) performance of alternative strategies as compared to the implemented strategy and indicates whether the alternative strategies are superior or inferior as compared to the implemented strategy
4) Anecdotal information on similar companies This category refers to information on whether the implementation of the strategy brought success or failure to similar other companies
5) Perceived correctness of the reported performance This category refers to the perceived fit between the reported and the perceived actual performance
6) Costs associated with implementing the strategy (Brockner, Rubin, and Lang, 1981) This category refers to sunk vs future costs necessary for implementation

Table 3 1 gives a summary of how selectively exposing oneself to information confirming the correctness of the implemented course of action in any of these categories can contribute to dissonance reduction For each of these categories, the decision-makers can selectively look for information that would support their strategy with the hope of decreasing dissonance and justifying previous choice and escalating commitment Below, each information category will be explained further and the expectations will be given in the form of hypotheses

Predicted future performance: In this category, confirming information would be information indicating that the strategy will be successful in the future whereas the disconfirming information would be the one indicating future failure Levy and Hershey (2006 53) proposed that "engaging in value-induced bias (i e distorting the probability of relevant outcomes to justify one's preferred choice)" can indeed be thought as a type of cognitive dissonance reduction Such a bias would be undesirable since it "can create misperceptions of the decision outcomes and may result in suboptimal decisions" (Levy and

Hershey, 2006 52) For instance, they showed that for medical decisions, "subjects adjusted the probability of treatment success to justify their preference for or against treatment" (Levy and Hershey, 2006 56) Similarly, decision-makers who escalate in their commitment can prefer information suggesting future success and such information can help both to deny the present setback and exaggerate the goodness of the chosen alternative Hence, regarding the predicted performance of the strategy, the following hypotheses will be tested

Hypothesis 1. *In escalation situations subjects who a) initially choose b) are held responsible for the results of or c) are initially committed to a course of action that subsequently fails will be more likely to prefer information that indicates the future success of the action than will subjects who are not a) able to choose freely b) held responsible for the results or c) initially committed*

Factors that contribute to the decision consequences. This information category is very useful and informative for decision-makers in identifying the causes of the setback In this respect, attribution theory provides insight Heider (1958) laid the fundaments of attribution theory by developing a model of how people structure their environment through causal attributions Asking the question "why?" is a way of attaining knowledge in order to effectively manage oneself and one's environment (Kelly, 1971, Weiner, 1985) In explaining success and failure, different possible causes can be used Heider (1958) initially distinguished between "factors within the person" and "factors within the environment", also called internal and external causes (Fitch 1970, Weiner and Kukla, 1970 Weiner, 1985) Generally, ability and effort are seen as internal factors whereas nature of the task and luck are seen as external causes Next to internal-external distinction (*locus of causality*), Weiner and his colleagues (Weiner, Frieze, Kukla, Reed, Rest, and Rosenbaum, 1971) introduced a second dimension *stability of causality* distinguishing between stable (i e unlikely to change over time, relatively constant) vs unstable (i e likely to change over time) causes Perception of whether causes are internal or external and stable or unstable has bearing both on how decision-makers manage the responsibility for the achieved performance and on the anticipations of future performance Below, each of these two factors will be explained separately

Locus of causality – internal vs. external causes for decision consequences: It has been shown that people do not use the same causal explanations for their successes and failures

Individuals tend to attribute their successes to themselves but view external factors or chance as responsible for their failures (Langer and Roth, 1975, Miller, 1976, Hogarth and Makridakis, 1981) This tendency to assume that external factors cause the failure can also play a role in escalation of commitment situations when decision-makers want to justify their actions by absolving themselves from responsibility By collecting information implicating the external causes for the failure, they can save face and justify their choice By shifting the blame, the decision-maker can avoid responsibility for the decision consequences and reduce dissonance (Cooper, 1971) Moreover, by indicating that the setback was caused by external (and temporary) factors, a decision-maker can also increase the attractiveness of the implemented course of action Therefore, regarding locus of causality, the following hypotheses will be tested

Hypothesis 2. *In escalation situations, subjects who a) initially choose, b) are held responsible for the results of, or c) are initially committed to a course of action that subsequently fails will be more likely to prefer information that attributes failure to external causes than will subjects who are not a) able to choose freely, b) held responsible for the results, or c) initially committed*

Stability of causes - Temporal aspects of causes for decision consequences: Regarding expectancy from the future, attribution theory predicts that "the stability of a cause, rather than its locus, determines expectancy shifts If conditions are expected to remain the same, then the outcome(s) experienced in the past will be expected to occur" (Weiner, 1985 556-557) Hence, a committed decision-maker can indicate that the setback was temporary, i e unstable, to justify further commitment and investments This way, he or she can deny responsibility and at the same time, increase the attractiveness of the course of action Therefore, regarding stability of causes, the following hypotheses will be tested

Hypothesis 3. *In escalation situations, subjects who a) initially choose, b) are held responsible for the results of, or c) are initially committed to a course of action that subsequently fails will be more likely to prefer information that attributes the failure to temporary causes than will subjects who are not a) able to choose freely, b) held responsible for the results, or c) initially committed*

Table 3.1: Information categories and dissonance-reducing mechanisms

Information categories		Information content (confirming information is given bold & italic)	Dissonance reducing mechanisms			
			Deny setback	**Deny responsibility**	**Exaggerate the attractiveness of the chosen alternative**	**Exaggerate the unattractiveness of the rejected alternative**
Predicted future performance		***Successful future performance***	√		√	
		Failure as future performance				
Factors that contribute to the decision consequences	Locus of causality	Internal causes		√	√	
		External causes				
	Stability of causes	***Temporary causes***		√	√	
		Permanent causes				
Alternative strategies		***Alternative strategies are worse***			√	√
		Alternative strategies are better				
Anecdotal information on similar companies (implementing the same strategy)		***Success to similar companies***			√	
		Failure to similar companies				
Perceived correctness of the reported performance		***Actual performance is better than reported***	√		√	
		Actual performance is worse than reported				
		Reported performance was accurate				
Costs associated with implementing the strategy		Sunk costs				
		Future costs				

Alternative strategies. The effect of alternative courses of action on escalation has been non-conclusive Whereas McCain (1986) showed that having knowledge on alternatives limits escalation, Davis and Bobko (1986) could not show any effects Even though its effect on escalation is not conclusive, information on alternative strategies can be an important means of dissonance reduction and justification Under escalation conditions, felt dissonance cannot be reduced if the decision-makers get to hear that the alternatives are better This information would undermine the correctness of their choice Instead, it might be expected that decision-makers prefer information which states the advantages of their strategy over the alternative strategies This way, a decision maker can decrease dissonance by exaggerating the negative sides of the rejected alternatives while praising the positive sides of the chosen alternative Therefore, regarding alternative strategies, the following hypotheses will be tested

Hypothesis 4. *In escalation situations subjects who a) initially choose b) are held responsible for the results of, or c) are initially committed to a course of action that subsequently fails will be more likely to prefer information that stresses the superiority of the implemented action over the alternative(s) than will subjects who are not a) able to choose freely b) held responsible for the results or c) initially committed*

Anecdotal information on similar companies. Schwenk (1984) points out the importance of anecdotal information and how decision-makers find it valuable "people tend to give too much weight to vivid anecdotal information about executives or companies" (Schwenk, 1984 300), "experimental evidence shows that vivid anecdotal information may bias judgments by encouraging the representativeness heuristic and drawing decision-makers' attention away from other types of information" (Schwenk, 1984 302) Hogarth (1980) suggested that if anecdotal information is consistent then it might discourage people from looking for further information In a decision-making situation, information suggesting that similar companies experienced success with the very same course action would constitute confirming anecdotal information Here, the focus is on the anecdotal nature of the information rather than its vividness However, it is likely that a success story of a similar company will be more vivid than some statistical information and can help increase the optimism of the decision-maker regarding the success potential of the course of action By choosing such confirming information, a committed decision-maker can increase the attractiveness of the chosen

alternative. Therefore, regarding anecdotal information on similar companies, the following hypotheses will be tested:

Hypothesis 5. *In escalation situations, subjects who a) initially choose, b) are held responsible for the results of, or c) are initially committed to a course of action that subsequently fails will be more likely to prefer information that contains stories of success similar companies achieved with the same strategy than will subjects who are not a) able to choose freely, b) held responsible for the results, or c) initially committed.*

Actual performance – perceived correctness of the reported performance. The negative consequences faced with the implemented strategy are the main causes of dissonance and the justification needs. One way of reducing dissonance and justifying choice would be denying the existence of the setback. The best way to do so would be to indicate that the consequences are not as bad as they were thought to be. A committed decision-maker can selectively pay attention to performance measures that show that the strategy has actually performed well and/or criticize the criteria used for judging the decision consequences. This way, the setback can be denied and the choice and commitment can be justified. Hence, regarding the perceived correctness of the reported performance, the following hypotheses will be tested:

Hypothesis 6. *In escalation situations, subjects who a) initially choose, b) are held responsible for the results of, or c) are initially committed to a course of action that subsequently fails will be more likely to prefer information that shows more successful performance consequences than will subjects who are not a) able to choose freely, b) held responsible for the results, or c) initially committed.*

Costs associated with implementing the strategy: It is difficult to classify information in this category as confirming or disconfirming. Sunk vs. future costs do not have a direct link with any of the dissonance-reducing mechanisms. However, sunk cost is an important information item for escalation situations. Staw (1981) indicated that justification motives can lead to a form of "retrospective rationality": "The individual, when motivated by a need to justify, seeks to appear competent in *previous* as opposed to *future* action" (Staw, 1981: 583, italics in original). Following the retrospective rationality argument, one can hypothesize that individuals who seek to justify their choice, responsibility and/or commitment will search for

and use information on sunk costs Therefore, regarding costs associated with implementing the strategy, the following hypotheses will be tested

Hypothesis 7. *In escalation situations, subjects who a) initially choose, b) are held responsible for the results of, or c) are initially committed to a course of action that subsequently fails will be more likely to prefer information on sunk costs than will subjects who are not a) able to choose freely, b) held responsible for the results, or c) initially committed*

Overall confirmation bias: To justify their choice and commitment or to absolve themselves from responsibility, committed individuals would be more likely to selectively expose themselves to confirming information Hence, overall, it can be expected that as compared to the non-committed people, committed people will look for more confirming information However, this expectation should be considered with caution Neither the relative power of the dissonance-reduction mechanisms in reducing dissonance nor the contribution of the individual information items to the dissonance reduction is known It is possible that a decision-maker can suffice with just one (or a few) type(s) of confirming information to reduce dissonance If, for instance, avoiding the setback is a preferred response mechanism then confirming information on actual performance would be enough to reduce dissonance and further search for confirming information would not be necessary Ditto and Lopez (1992 570) gave a reason for such behavior "Because individuals are relatively unlikely to consider alternative explanations for preference-consistent information, relatively little information (or information of relatively poor quality) should be required lor people to arrive at a preference-consistent conclusion" Similarly, Beyer et al (1997) indicated that decision-makers might need relatively little information for confirmation Yet, these expectations are about the search behavior of one individual trying to reach either a preference consistent or inconsistent conclusion This is different from comparing a committed individual to a non-committed regarding their confirming information preference Hence, with this caution in mind, the following hypotheses will be tested

Hypothesis 8. *In escalation situations, subjects who a) initially choose, b) are held responsible for the results of, or c) are initially committed to a course of action that subsequently fails will search for more confirming information items than will subjects*

who are not a) able to choose freely b) held responsible for the results, or c) initially committed

3.2 Research Design

Research method: This research takes an experimental approach with role-playing simulations Even though laboratory experiments could be criticized for their external validity, the use of role-playing scenarios and experiments is consistent with past research on escalation of commitment Moreover, given that both escalation of commitment and information biasing have multiple determinants, an environment in which factors other than the independent variables that were of interest in this research, could be controlled was desired A laboratory experiment with a role-playing simulation was, therefore, chosen an the appropriate research strategy

Altogether, four experiments were designed and ran to test the hypotheses developed in this research All of these experiments involved a decision-making situation where the subjects were asked to play the role of a manager at a company and either to choose a strategy to implement or to decide on whether to support a given strategy Such decision-making simulations where subjects are asked to make decisions as a manager at a fictitious company have been very common in escalation research Examples include hiring decisions based on candidate characteristics (Bazerman et al , 1982, Caldwell and O'Reilly 1982), resource allocation (e g choice of an R&D department to invest in) based on past financial data (Staw, 1976, Bazerman et al , 1984, Davis and Babko, 1986, Schoorman and Holahan, 1996), choice of a country to build a dam (Staw and Ross, 1978, Conlon and Wolf, 1980), production defect percentage problem (Kernan and Lord, 1989)

Experimental design: All the experiments were paper-based and took about 50 minutes The experiments involved five stages (figure 3 7) I Case description the company and the role of the subjects within the company were explained The case description also involved information on the available strategy(ies) This information depended on the case used and the experimental group the subjects were in but the main purpose of inducing choice or commitment manipulation remained constant in all the experiments II Initial investment decision the subjects were asked to make a decision on the amount of money they would like to invest in the strategy to be implemented III Decision consequence after making the initial

investment decision, the subjects were informed of the results of the strategy that was implemented IV Final investment decision the subjects were asked how much of the new funds they would be willing to invest in the initially implemented strategy V Information preference the subjects were asked to indicate, per information category, which information they would like to use The first part of the experiments (stages I-IV) was aimed at creating an escalation situation whereas the second part (stage V) was aimed at measuring the information preference of the subjects under escalation situations Detailed information on the manipulations and the design of the specific experiments can be found in chapters 4 and 5

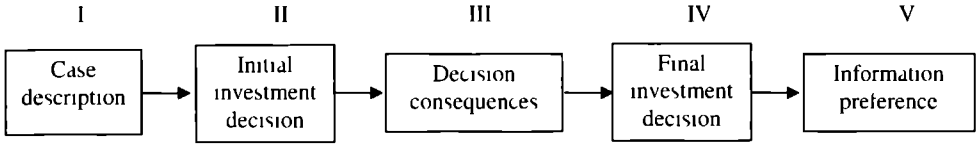


Figure 3.7: Experimental design

Experimental cases and questionnaire: Two different cases were used The first two experiments used a case based British restaurant chain named Beefeater The shortened case was developed for this research based on the case material of the simulation game BEEFEATER (Global Strategy Dynamics, 2001) The experiment involved two separate strategies, one of which to be implemented The purpose of these experiments was to focus on identifying the effects of choice and responsibility for decision consequences on information preferences The third experiment involved a case of a successful supermarket chain facing some recent difficulties The subjects had to decide whether they support a so-called discounting strategy The purpose of this experiment was to focus on identifying the effects of initial commitment and decision consequences on information preference

The experimental questionnaire included questions measuring the commitment, information preference, manipulation checks, and demographics The experiments followed one another in time Therefore, in the subsequent experiments, some new questions were added to the questionnaire More information on the case and the questionnaire content will be given in the next chapters

Subjects: Subjects were either undergraduate (experiments 1 and 4) or HBO-students[8] (experiment 2, 3) enrolled at Wageningen University (experiment 1) or Nijmegen Business School (experiments 2, 3, and 4) Participation was on a voluntary basis Even though the use of students as subjects can limit generalizability, there is indication that students and employees make similar decisions (e g Locke, 1986) For instance, while examining the biasing effects of framing on business decisions, Mowen and Mowen (1986) found that students without business experience made similar decisions to business people Harrison and Harrell (1993) reported similar findings Yavas (1994) showed that students and adults attached similar levels of importance to various information sources Remus (1986) also showed that there were no significant differences between students and managers in production scheduling decisions In the domain of escalation of commitment, Garland and Newport (1991) found consistent findings for undergraduates and MBA students. In an overview, Ashton and Kramer (1980 3) stated, "the available evidence suggests that real-world decision makers possess information-processing characteristics and biases that are extremely similar to their student counterparts Given the results reviewed here, one could argue that students are likely to be good surrogates for the real-world individuals of interest in tasks involving human information processing and decision making" Slovic, Fleissner, and Bauman (1972) indicated that due to recent classroom and examination experiences, students would be more aware of their judgment processes If that is true, then in the domain of biases, one could expect the results of the managers to be worse than those of the students

Nevertheless, care has to be taken while generalizing the results The cases were developed carefully to ascertain that decision scenarios did not require extensive, in-depth knowledge to make decisions A restaurants' attractiveness for consumers is a topic where students can make sound judgments The case of the third experiment involved a supermarket chain investing in price discount In the period the experiment was run, price war amongst supermarkets was a very popular phenomenon in the Netherlands and received extensive media coverage Hence, the students were familiar with the topic, discounting strategies, and their possible effects Still, it has to be kept in mind that the feelings of responsibility and involvement in the experiment can be different than in real life

[8] HBO students are those who have already finalized a study targeting a professional education A HBO study does not have the academic focus a university education has but aims at preparing individuals that can function as professionals in business life After finishing a HBO study, successful students can stream into university and follow a master's program after successfully completing a 'bridging' year at the university

3.3 Summary

In this chapter, the conceptual model and the hypotheses to be tested in this research were developed. Given the claims of dissonance theory, which forms the basis of the self-justification explanation of escalation, it is expected that decision-makers escalating in their commitment to a losing course of action will make use of selective exposure to information. That is, they will prefer information that confirms the goodness of the initially-chosen course of action and hence, justifies the choice and commitment of the decision-maker and/or absolves the decision-maker from the responsibility for the negative consequences. Based on the project determinants of escalation, eight information items were identified. These are: predicted future performance, locus of causality, stability of the causes for failure, foreseeability of the setback, alternative strategies, anecdotal information on similar companies, perceived correctness of the reported performance, and costs associated with implementing the strategy. For each of these items, it was hypothesized that in escalation situations, choice, responsibility, and/or initial commitment will lead to tendencies for confirming information search. Moreover, it was hypothesized that choice, responsibility, and initial commitment will be positively associated with increased number of confirming information items requested. Finally, general information on the research design was given. In the next two chapters, more information on the experimental tools and questionnaires will be given, the analysis of the experimental data will be presented, and the results will be discussed.

Chapter 4

Effect of choice and responsibility on selective exposure to information

In this chapter, the design and analysis of two experiments that focus on answering the first two research questions will be discussed. Choice and responsibility for decision consequences will be studied as the driving forces behind escalation of commitment and dissonance arousal. The hypothesis sets a and b presented in chapter 3 indicated the expectation that choice and responsibility will stimulate not only escalation to a failing course of action but also confirmatory information search. The experiments in this chapter are aimed at testing these hypotheses. In order to do so, a decision-making situation in which escalation of commitment could occur was induced and the effects of choice and responsibility on both escalation and selective exposure to information were investigated. These will serve as a test for one of the relationships in Staw's (1997) aggregate model of escalation, i.e. the effect of behavioral factors (choice and responsibility) on the perception of project determinants (information items). Moreover, the experiments will provide a check to whether the claims of dissonance theory other than justification also hold for escalation situations.

Below, the general experimental design, the method, the experimental manipulations, operationalization of the dependent variables, and the results of each experiment will be explained. Experiment one served as a pre-test of the case and the experimental questionnaire. Based on the experience from this experiment, certain questions were changed and extra questions were added to the experimental questionnaire for the second experiment. Since the case used and the general structure of the experiments remained the same, first, the general experimental design will be explained first.

4.1 General experimental design

A case of a British restaurant chain named Beefeater was used (see Appendix I) The case was developed based on the case material of the Beefeater simulation game by Strategy Dynamics (Global Strategy Dynamics, 2001) The experiments were paper-based and took about 50 minutes

Upon arriving at the room where the experiment took place, the participants were asked to take a seat The material they would work on was set ready on the tables The first page of the experimental questionnaire included written general instructions on how they should proceed In these instructions, the importance of getting into the role they were assigned was stressed Then, the respondents were asked to read a two-page long case of Beefeater describing the history of the restaurant chain as well as its market, customer profile, competitors, and the restaurant environment The case ended with information on the performance of the last years and challenges for the future After reading the case, the participants were presented with further written information on the current situation of the business and their task in the company

> "However, lately, the business has proved more challenging A new competitor Harvester recently started up and seems to be developing quickly They are opening restaurants quickly and are heading towards overtaking the market lead from you within the next year The restaurant sector, in general, is also becoming more competitive especially with widespread discounting in meal prices Moreover, the country once again went into recession, consumer incomes fell back, and eating out expenditures declined Your task is to manage Beefeater in order to repel the competitive threats and sustain a lead in the market, while continuing to deliver growth and financial performance'

Apart from information on the company, the participants also received information on their role in the company and the decision that they need to take This is where the manipulation of *choice* took place The decision on strategy choice constituted the manipulation Half of the subjects were informed that they have been successfully managing the business of Beefeater for the last 5 five years and now, they were asked to choose a new strategy to implement in the upcoming difficult times The other half was informed that they were taking over the business after the unexpected departure of the previous (successful) manager and that even though it was their task to manage the restaurant, they had to implement a strategy that the headquarters imposed on them

For the manipulation of responsibility for decision consequences, half of the subjects were assigned to the high-responsibility condition and were told that they *will be* held personally responsible for the performance results attained in the coming years and the bonus they will receive *will* depend on the performance outcomes, that is, how well they meet the targets of the headquarters The other half constituted the low-responsibility condition and were told that they will *not* be held personally responsible for the performance results attained in the coming years and the bonus they will receive will *not* depend on the performance outcomes, that is, how well they meet the targets of the headquarters but *will be a fixed percentage* of their yearly salary

After this, all the subjects were asked to answer questions intended to measure their initial commitment to the strategy they chose (choice group) or the strategy that was imposed on them (no-choice group) After answering these questions, the respondents were informed that five years had past by since the strategy was implemented and they were presented with the consequences All the subjects received the same failure feedback which informed them that the overall profit had been below the target and they have been receiving regular warnings from the headquarters The threat from the competitor was not diverted Moreover, the customers' perception of Beefeater's quality was going down whereas the perception of competitor's quality was going up and the number of meals served per restaurant has been continuously declining Overall, "Beefeater could not fulfill the targets set five years ago"

While giving the performance feedback, care was taken that the feedback was not too negative As Staw (1999 p193) points out, in escalation situations, "withdrawal or persistence are not obvious or clear-cut solutions to the problem" To enable this the feedback was made negative but not too negative such that all the participants would choose to quit the action Following the performance feedback, the participants were informed

> 'Headquarters are willing to authorize another five million pounds (£ 5 000 000) but they would first like you to explain how you would spend this money

In order to do so, they were asked to answer the questions on how much of the five million pounds they would spend on the strategy and how committed they felt to the strategy These questions were used to measure their commitment and were the same as the one used to measure their initial commitment They were also informed that they need to write a report to the headquarters explaining how they would spend the additional money They were then

asked to indicate the type of information they would like to include in this report The respondents were not actually made to write the report The purpose was to measure their information preference Finally, the participants answered questions designed to check the effectiveness of the manipulations and to gather demographic information on the subjects

The first experiment took place in June 2004 with 114 undergraduate students at Wageningen University Participation was on a voluntary basis and the participants received five Euros as compensation The second experiment took place in April 2005 with 163 HBO students at the Nijmegen School of Management The experiment was part of a Market Research course and participation was on a voluntary basis

4.2 Experiment one: effect of choice

In this section, experiment one will be explained in detail This experiment served as a pre-test for the case and the experimental questionnaire To be able to test the hypotheses of this research, it was essential to create an escalation situation It was important to establish that the scenario included in the case description generated the conditions under which escalation of commitment could take place More specifically, it was necessary to test whether the decision situation and the choice used in the scenario resulted in escalation Therefore, this experiment was used to test whether the Beefeater case was appropriate for inducing the escalation conditions Moreover, this experiment also served as a pre-test for checking the reliability of the independent and dependant variables It was also used to get first results on the effect of choice on information preference under escalation situations

4.2.1 Experimental questionnaire and operationalization

4.2.1.1 Independent variable: Experimental manipulation

The manipulation of choice was the only one in this experiment Choice is one of the main antecedents of commitment and is important in evoking self-justification motives, which can lead to escalation of commitment In most previous experimental work in the domain of escalation of commitment, choice was shown sufficient to create escalation Therefore, in

this experiment, in order to create an escalation situation, choice was used as the manipulation. The conceptual model tested in this experiment is given in figure 4.1. The full text of the experimental questionnaire, manipulation, and the dependent variables can be seen in appendix I.

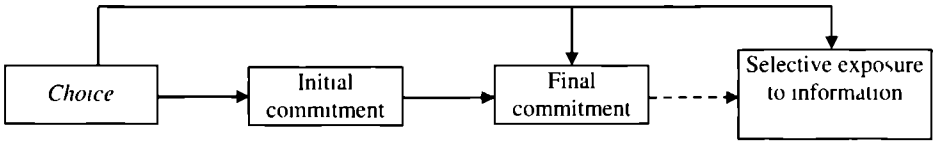


Figure 4.1: Conceptual model tested in experiment one. The manipulation is shown in italics.

Manipulation of choice: The manipulation was similar to manipulations in previous research. The subject population was randomly assigned to one of the two experimental groups: choice and no-choice of strategy. The choice subjects were told that they have done a great job in managing the business of Beefeater for the last five years. They were informed that during these five years,

> "Restaurant numbers, sales, and profit have remained strong and you have continuously assured that consumers are happy enough with the value that your restaurants offer Your team earned regular bonuses during the past".

They were then informed that the headquarters made five million pounds available for investing in the strategy of Beefeater for the five years to come, at the end of which the performance of Beefeater was to be evaluated. This is the choice subjects were given the option to choose a strategy:

> "As the manager, it is your task to choose and implement a strategy. Given the current market situation, you would like to choose one of the following two strategies to implement:
>
> ***Strategy A:*** You can choose a strategy that invests specifically in service quality and targets high-income groups. Choosing this strategy, you would put emphasis on:
> - Growth by opening restaurants in *high-income areas only* while closing down smaller, non-profitable restaurants, especially those in low-income areas.
> - High quality by investing specifically in *service* and *menu appeal.*
> - Keeping the prices at their current level *slightly above* those of the competitors.
>
> ***Strategy B:*** You can choose a strategy that targets the general population and focuses on the market pressures. Choosing this strategy, you would put emphasis on:
> - Growth by acquiring new restaurants while closing down smaller restaurants that are not profitable.

- High quality by investing specifically in *restaurant environment*
- Responding to competitive pressures by following the competitors in discounting so that the prices would at the *same level or slightly less* than those of the competitors "

The other half, who were not in the choice condition, were informed that they were taking over the management of the business of Beefeater after the unexpected early departure of the previous managing director and that

> "The previous director made sure that restaurant numbers, sales, and profit have remained strong and he has continuously assured that consumers are happy enough with the value that your restaurants offer You have been informed that the managing team, under the previous manager, earned regular bonuses during the past"

Contrary to the choice condition, these subjects were not given the option to choose a strategy They were told that

> "Although it is your task to invest in the future strategy, the headquarters imposed on you the strategy they want implemented They want you to follow a strategy that targets "

At this point, the no-choice group was also divided into two groups randomly to mirror the 2 available options of the choice group To mirror strategy B, half of the no-choice subjects were told

> "They want you to follow a strategy that targets the general population and focuses on the market pressures They would like you to keep on emphasizing growth by acquiring new restaurants However, now, they want you to close down smaller, non-profitable restaurants In the meanwhile, they want you to keep high quality by investing specifically in restaurant environment They would also like you to respond to competitive pressures by following the competitors in discounting so that the prices of Beefeater would be at the same level or slightly less than those of the competitors"

To mirror strategy A, the other half was told

> "They want you to follow a strategy that invests specifically in service quality and targets high-income groups They would like you to keep on emphasizing growth by acquiring new restaurants However, now they want you to focus on opening restaurants only in high-income areas while closing down smaller, non-profitable restaurants, especially those in low income areas In the meanwhile, they want you to keep high quality by investing specifically in service and menu appeal while keeping the prices at their current level slightly above those of the competitors"

4.2.1.2 Dependent variables

There were two dependent variables in this study. First, commitment was measured to identify whether the subjects escalated in their commitment. Second, information preference was measured to see whether selective exposure to information took place.

Measurement of commitment: Two different measures of commitment were used. First, following prior research on escalation, commitment was operationalized as *the amount of money invested in the initially-implemented strategy*. Second, a new operationalization of commitment was used to measure felt-commitment to the strategy[9]. Measuring commitment only in terms of money invested could give a limited view on commitment since this measure only represents the behavioral aspect of commitment. In the organizational behavior literature, organizational commitment (i.e. employee's commitment to an organization) is accepted to have both a behavioral and an attitudinal component (Mowday, Steers, and Porter, 1979; McGee and Ford, 1987; Mathieu and Zajac, 1990; Kalleberg and Reve, 1993). Based on Mowday, Porter, and Steers (1982), Mathieu and Zajac (1990: 185) noted that most of the definitions of commitment reflected the distinction between "commitment as an attitude or as a behavioral investment". Attitudinal dimension of organizational commitment represents "a person's loyalty to the firm and identification with its values" (Kalleberg and Reve, 1993: 1107). Mowday et al. (1979) stated that attitudinal commitment (also referred to as affective commitment (Meyer and Allen, 1984; Meyer, Stanleym Herscovitch, and Topolnysky, 2002)) can be characterized by a strong belief in the organization's goals and values, a willingness to exert effort on behalf of the organization, and strong desire to maintain membership in the organization. As such, organizational commitment can be seen as "a set of behavioral intentions" (Scholl, 1981). Even though the concept of organizational commitment is different from commitment to a decision or a course of action, the distinction between behavioral and attitudinal commitment could be useful in understanding how commitment to a decision evolves. There is indeed research indicating that people's attitudes (that is, what say or think they will do) does not necessarily coincide with what they actually do (cf., Eagly and Chaiken, 1993). There can be a discrepancy between people's behavior and their attitude towards the behavior. The behavior can be conservative in relation to the

[9] It should be realized that strictly speaking, what is measured in these experiments are the "stated" behaviour and attitude rather than the actual behaviour and attitude.

attitude but can also exceed the behavior dictated by the attitude level For instance, in the context of investments, people who feel committed to a strategy might choose to invest less than they would otherwise if they want to avoid risk, feel resistance from others, or worry about losing support from their superiors In these cases, money invested as a single measure of commitment would indicate a level of commitment that is less than what is actual felt In the same way, people might choose to invest for reasons other than felt-commitment For instance, money might be available for only one course of action and might be lost if not invested The individual might, then, decide to invest even though she or he does not support the action Alternatively, one might feel obliged to invest in a course of action due to pressure from peers or superiors even though he does not believe in the goodness of the action or feel committed to it Distinguishing attitudinal and behavioral commitments is of particular relevance in the escalation of commitment domain, because people who invest money without feeling committed can more easily withdraw from the action once the cause of the investment is gone, regardless of the quality or the performance level of the action In the same way, people who invest little, even though they feel very committed, might keep on investing even though the action fails In such cases, looking only at money invested as a measure of commitment would give a false sense of commitment. Therefore, looking at felt-commitment or attitudinal commitment alongside behavioral commitment could increase our knowledge on commitment to a decision

To measure the commitment the subjects feel towards the strategy, a new multi-item measure of felt-commitment or attitudinal commitment was created The items were 1 I believe this strategy is going to work, 2 I would not stick to this strategy, 3 I would like to invest all existing resources to implement this strategy, 4 I think there are better strategies than this strategy

Compared to the previous escalation studies, there was also a difference in the operationalization and test of escalation of commitment So far, commitment has typically been measured only after the receipt of the decision consequences This measure has been used as an indication of escalation If subjects in the choice group invested more than those in the no-choice group escalation is said to take place Yet, the word escalation carries in itself a connotation of rise, growth, acceleration, increase, is defined "to increase in extent, volume, number, amount, intensity, or scope" (Merriam-Webster Online dictionary) Given this definition, a one time measure of commitment cannot be enough to identify whether escalation takes place In order to decide on its occurrence, one needs to look at, at least, two

points in time If commitment is measured at two different points in time, once before and once after the performance feedback, the difference between these two measures can give an indication of the change in commitment To conclude that escalation takes place upon the receipt of negative consequences, individuals that escalate should either increase their commitment more or decrease it less than others do To test for this, two measurements of commitment were taken The first measurement was after the case information but before the performance feedback In the previous escalation studies, the choice, on its own, constituted the decision and since the chosen alternative received all the available funds there was no decision on how much money to invest In this study, the subjects could determine the amount of money they would invest on the strategy initially This seems more realistic since in real life, decision-makers can also decide on how much of the available funds to invest in implementing a strategy This initial investment decision gives a measure for the strength of the initial commitment The purpose was to identify a base (or initial) level of commitment participants have for the strategy The second measurement was after receiving the feedback on the decision consequences This gives a measure of the strength of the final commitment

As a result, this study used two measures of commitment (behavioral and attitudinal) and two measures of escalation which will be compared to one another First measure of escalation was the commitment level after the receipt of the decision consequences This represents the measure used in previous escalation literature The second measure of escalation was the difference between the initial and final commitment levels

Measurement for information preference: confirmation bias: After the second investment decision, the subjects were informed that they needed to write a report to the headquarters supporting the decision they have made For this report, they could make use of information that a consulting company would collect for them However, given the time and monetary constraints, they needed to choose the information they wanted collected They were given six information items (see table 4 1) and for each item, two possible information contents to choose from Confirming information content per information item was identified beforehand and the percentage of people choosing for the confirming item in each experimental group was used as a dependent variable A second measure for the confirmation bias was the total number of confirming items chosen by an individual

The style of the questions was as follows (here, only one example is given, the rest of the questions is in appendix I):

Report 1:

Which of the following reports would you like to receive? Please indicate your choice by circling the letter corresponding to the report of your choice.

a) A report that estimates the likelihood that the further implementation of this strategy will bring success to the company and explains the reasons for this possible success.

b) A report that estimates the likelihood that the further implementation of this strategy will bring failure to the company and explains the reasons for this possible failure.

Table 4.1: Information categories for experiment one. The confirming items are shown bold and italic in column 3.

Information type	Explanation	The content of the reports
Predicted future performance	This category contains information on the likelihood of success or failure with the strategy in case it is continued	***Likelihood of future success***
		Likelihood of future failure
Locus of causality	This category contains information on whether the causes of the poor performance over the last 5 years were external or internal.	Internal causes
		External causes
Stability of causes	This category contains information on whether the causes of the setback were temporary (not likely to occur again) or permanent (likely to occur again).	***Temporary cause***
		Permanent cause
Alternative strategies	This category contains information on whether the alternative strategies are better or worse than the implemented strategy.	Alternative strategy is better than the current strategy
		Alternative strategy is worse than the current strategy
Anecdotal information on similar companies	This category contains information on the performance of similar companies that implemented the same strategy in the past	***Strategy brought success to other similar companies***
		Strategy brought failure to other similar companies
Costs	This category contains information on the costs associated with implementing the strategy.	Sunk costs
		Future costs

4.2.1.3 Other questions and the post-experimental questionnaire

After both investment decisions, the confidence of the respondents in the strategy as well as the responsibility they feel for the choice of the strategy were measured. Moreover, at the end, a post-experimental questionnaire was administered with manipulation check and

demographic questions The manipulation check for choice was done by asking to what extent the subjects felt that someone other than him or herself made the choice of the strategy (seven-point Likert type response format with anchors 1 to no extent, 7 to a very large extent) Moreover, two questions were asked to check whether the performance feedback was perceived as negative by the respondents See appendix I for the questions

4.2.2 Results

In this section, the results will be discussed First, the results of some initial analysis, including manipulation checks, will be presented Then, results regarding escalation of commitment will be given Finally, the results on information preference will be discussed

4.2.2.1 Manipulation checks

To evaluate the effectiveness of the choice manipulation, the responses of the subjects to the manipulation check were compared One-way ANOVA showed that were choice manipulation was the main and only effect ($F(1, 79) = 19\,041$, $p < 0\,001$) The subjects in the no-choice group felt more strongly that someone other than themselves made the initial decision ($Means_{No\ Choice} = 5\,41$ and $Mean_{Choice} = 3\,91$, $t = 4\,591$, $p < 0\,001$, 1 to no extent, 7 to a very large extent) Questions on how the performance feedback was perceived revealed an interesting result Even though all the subjects received the same performance feedback, the subjects in the choice group perceived the performance as less negative than the subjects in the no-choice group ($Means_{No\ Choice} = 2\,68$ and $Mean_{Choice} = 3\,78$, $t = -4\,425$, $p < 0\,005$, 1 negative, 7 positive)

Whether the strategy chosen (strategy A or B) made any difference on the subsequent allocation decision was also tested For the subjects in the choice condition, there was no difference in the subsequent investment behavior between the subjects who initially selected strategy A or B (means £ 3,491,379 vs £ 3,617,647, $t = -0\,387$, $p = 0\,701$) Therefore, these groups were combined for further analysis In the no-choice condition, the chosen strategy was randomly assigned to the participants rather than self-selected Also for this group, there was no difference in the subsequent investment behavior between the subjects who were

assigned strategy A or B (means: £ 3,472,222 vs. £ 2,858,824, t = 1.417, p = 0.166). Hence, these groups were also combined.

A preliminary analysis showed that the choice subjects felt more confidence in the strategy and also felt more responsible for the choice of the strategy. This difference in the feeling of confidence and responsibility did not change upon the receipt of negative consequences. These combined with the manipulation check gives confidence that the choice manipulation was successful.

Another analysis was conducted for nationality and gender. 33 subjects who were Chinese were left out of the analysis since they acted differently than the Dutch subjects. Contrary to the rest of the subjects (as will be explained below), the Chinese subjects did not show any effects for choice. Whether they chose the strategy themselves or it was imposed on them did not make any difference for either the commitment or the information preference. Gender did not have any significant effects on the results. With respect to age, the group was homogeneous.

Finally, the reliability of four items to measure felt-commitment was 0.637 (Cronbach's alpha). Given this low reliability, the results for this measure are not reported here and for experiment two, a new measure was developed.

4.2.2.2 Analysis for commitment and escalation of commitment

Analyses were performed for the initial commitment, final commitment, and the difference between the initial and final commitments.

Initial commitment was measured right after the subjects were informed of their role in the company, that is, the choice manipulation (see table 4.2). They were asked to indicate how much of the available funds they would invest in the strategy. There was no difference in the initial average investment amongst the choice and no choice groups (t (79) = -1.388, p = 0.169).

To investigate whether escalation took place, analysis on the *final commitment* was performed (see table 4 2) This has been used as a measure of escalation of commitment in previous escalation studies Consistent with prior research, significant differences existed between the groups T-tests showed that the subjects who made the choice invested significantly more than those on whom the strategy was imposed ($Mean_{No\ choice}$ = 1,771,429 vs $Mean_{Choice}$ = 3,413,043, t (79) = -4 388, $p < 0.001$) This shows the occurrence of the escalation bias

Table 4.2: Initial and final commitment levels

Choice manipulation	N	Initial commitment		Final Commitment	
		Mean	Std Dev	Mean	Std Dev
No-choice	35	3,174,286	1,298,719	1,771,429	1,628,527
Choice	46	3,538,043	1,059,307	3 413,043	1,697 397

Additional analysis was done to see how commitment changed after the receipt of the performance feedback First, final commitment was analyzed while controlling for the initial commitment The purpose was to see whether choice was still an effective determinant of escalation once the effect of the first investment was controlled for Second, the difference between the two commitment levels was analyzed The purpose of this test was to check whether the choice subjects increased their commitment more or at least, decreased it less than the no-choice subjects Both analyses gave the same result regarding escalation

Univariate ANOVA for *final money invested while taking the initial money invested as a covariate* gave a significant main effect for choice ($Mean_{No\ choice}$ = 1,792,206 and $Mean_{Choice}$ = 3,397,235, F (1, 78) = 17 825, $p < 0\ 001$) Hence, regardless of the initial investment level, choice is an effective determinant Subjects in the choice group invested significantly more than those in the no-choice group

T-test for the *difference in money invested* showed that choice was a significant determinant (t (79) = -2 895, $p < 0\ 05$) The subjects in the no-choice group decreased the amount invested (mean = -1,402,857) more than the subjects in the choice group (mean = -125,000)

These tests show that regardless of the initial investment, choice leads to escalation. Those who made the initial choice invested more and decreased their commitment less than those on whom the strategy was imposed[10].

Finally, in order to test the conceptual model for this experiment, a *path regression* analysis was performed. Choice was regressed on initial money invested (AdjR^2 = 0.011, F(1, 79) = 1.927 p = 0.169) whereas both choice and initial money invested were regressed on final money invested (AdjR^2 = 0.179, F(2, 78) = 9.745, p < 0.0001). The results are shown in figure 4.2. Even though having made the choice of the strategy did not have any effect on the initial amount of money invested, it had a strong significant effect on the final amount of money invested. Those in the choice condition invested more than those in the no-choice condition. The initial amount of money invested did not have an effect on the amount of money invested after failure feedback.

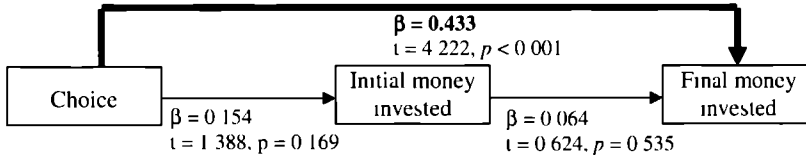


Figure 4.2: Results for path regression for the conceptual model of experiment one.

Summary and discussion for commitment: The overall results show that the initial amount of money invested did not differ between the two groups. On the average, the subjects in the no-choice group invested as much as those in the choice group. The reason for this could be that even though the no-choice group did not choose the strategy to implement, they were told that the headquarters wanted them to invest in it. Hence, they might have felt obliged to do so since this is what was asked of them. After hearing the negative decision consequences, the two groups diverged from one another. The subjects in the no-choice group decreased the amount of money they invested significantly more than the subjects in

[10] An additional analysis was performed for the difference in money invested in order to see whether the initial amount invested affects the change in investment. For instance, extreme high or low initial investments can have an effect on the change in the investment level. ANOVA for the difference while controlling for the initial investment returned a significant effect for choice (F (1, 78) = 17 825, p < 0 001) and the initial money invested (F (1, 78) = 31 110, p < 0 001). The result regarding the occurrence of escalation remains the same but is strengthened. Subjects in the choice group increased their investment (mean = 16,370) whereas those in the no-choice group decreased it (mean = -1,588,659).

the choice group As a result, the no-choice subjects ended up with a lower investment than the choice subjects did This shows that the escalation tendencies are stimulated by having the possibility of choosing an action Those who actually chose the strategy remained more committed to it than those who did not choose This result gives support for the occurrence of the escalation of commitment

The fact that the design of the experiment and the experimental case generated escalation of commitment shows that the case is appropriate to be used in this study to generate an escalation situation under which to test the hypotheses developed in chapter 3

4.2.2.3 Analysis for information preference under escalating commitment

In this experiment, the subjects could indicate their preference for six information categories For each of these information categories, a t-test was performed to see whether more subjects in the choice group asked for the confirming information than in the no-choice group The same analysis was performed for the total number of confirming items requested over all the categories Table 4 3 gives an overview of this analysis

For the information category *predicted future performance* the subjects could choose between a forecast for success or failure The percentage of subjects preferring success information was the same in both the choice and the no-choice groups Hence, the choice did not affect the search for confirming information regarding the predicted future performance of the strategy Given this result, hypothesis 1a is rejected

For the information category *locus of causality*, even though the majority of subjects preferred information on the internal causes, the percentage preferring the option on external causes was more (marginally significant) in the choice group than in the no-choice group Given this result, there is marginal support for hypothesis 2a

For the information category *stability of causes*, the majority of all the subjects in both groups preferred to hear that the causes of failure were ***permanent*** and likely to occur again. Given this result, hypothesis 3a is rejected

For the information category *alternative strategies*, even though the majority in both groups preferred the information that the alternative strategies are better, more people in the choice group wanted to hear that the current strategy is better than the alternatives Given this result, there is support for hypothesis 4a

Table 4.3: Information preference for choice and no-choice groups

Information category (confirming information content)	**Choice**	**N**	**Mean: percentage requesting confirming information**	**t-value**
Predicted future performance (likelihood of future success)	No choice	35	46	-,186
	Choice	46	,48	
Locus of causality (external causes for failure)	No choice	35	**,20**	-1 913^{+}
	Choice	46	**,39**	
Stability of causes (temporary causes)	No-choice	35	,06	,502
	Choice	46	09	
Alternative strategies (current strategy is better than the alternatives)	No-choice	35	**,20**	-2,538*
	Choice	46	**,46**	
Anecdotal information on similar companies (success to similar companies)	No-choice	35	**,51**	-2,785**
	Choice	46	**,80**	
Costs associated with implementing the strategy (sunk costs)	No-choice	34	,12	1,142
	Choice	45	04	
		N	**Number of reports**	**t-value**
total number of confirming information chosen out of a total of 6 reports	No-choice	34	**1,5000**	2,688**
	Choice	45	**2,2667**	

$^{+}p < 0.1$, $^{*}p < 0.05$, $^{**}p < 0.01$

For the information category *anecdotal information on similar restaurants*, the majority preferred to hear ***success*** stories The percentage in the choice group was significantly higher than the percentage in no-choice group Given this result, there is support for hypothesis 5a

For the information category *costs associated with implementing the strategy*, in both groups, the majority preferred information on ***future*** costs This contradicts the expectations and hence, hypothesis 7a is rejected

To test hypothesis 8a, the *total number of confirming items* requested was calculated The individuals in the choice group asked to receive more confirming items than those in the no-choice group This result gives support for hypothesis 8a However, it is interesting to note that out of 6 items, the choice group asked for an average of only 2 27 confirming items The situation seems to indicate a will for disconfirmation rather than confirmation Choice subjects, however, sought for less disconfirmation than no-choice subjects Following Fischer et al (2005), confirmation bias, which is used as a typical indicator of selective exposure (e g Jonas, Frey, and Kastenmuller, 2001), can be defined as "the extent to which a person prefers supporting over conflicting information (i e the number of chosen supporting minus the

number of chosen conflicting pieces of information)" Measuring confirmation bias this way, this data indeed indicates the existence of a disconfirmation bias in general However, choice leads to search for less disconfirming information ($Mean_{Choice}$ = -2 7547 versus $Mean_{No\ choice}$ = -1 6610, t(110) = -2 319, $p < 0\ 001$)

In order to test the conceptual model, a *path regression* analysis was run (figure 4 3) Both choice and final money invested were regressed on the percentage choosing the confirming information in all the information categories Choice had a significant effect on the preference regarding locus of causality and anecdotal information whereas final money invested had a marginally significant effect on the preference regarding the alternative strategies For the information item on alternative strategies, the t-test had shown that choice has a significant effect but overall, the majority preferred the disconfirming information indicating that alternatives are better than the current strategy Taking the final money invested into the analysis showed that as the final investment of people increased their preference for the confirming information also increased

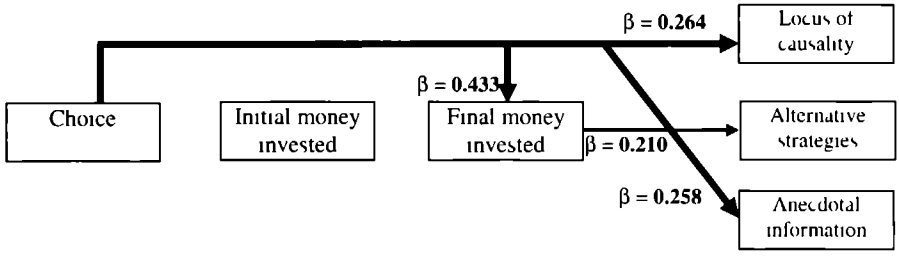


Figure 4.3: Results for path regression for the conceptual model of experiment one

Summary and discussion for information preference: The expectation was to show that as opposed to the subjects who did not initially choose the implemented strategy, those who made the initial choice would show more preference for confirming information In this experiment, choice was studied since it is one of the prominent antecedents of escalation and dissonance arousal The results indicate that the subjects in the choice group preferred to collect more confirming information than those in the no-choice group However, it turned out that all the subjects, regardless of their commitment, preferred more disconfirming information than confirming This result calls for a re-examination of the hypothesis that

committed people are prone to selectively exposing themselves to information and will strive to collect as much confirming information as possible

Regarding the specific information items, hypotheses 1a (predicted future performance), 2a (locus of causality), 3a (stability causes), 4a (alternative strategies), 5a (anecdotal information on similar companies with the same strategy), and 7a (costs associated with implementing the strategy) were tested Compared to the no-choice group, more people in the choice group preferred information indicating that the causes of failure were external (hypothesis 2a), that the current strategy is better than the alternatives (hypothesis 4a), and that similar companies implementing a similar strategy were successful (hypothesis 6a)

4.2.3 Conclusions from experiment 1

The results from this experiment were consistent with the previous work on escalation in the sense that after receiving negative decision consequences, the subjects who chose the initial strategy invested more than those on whom the strategy was imposed The difference in this investment was due to the change in commitment level induced by the negative feedback People who chose the strategy decreased their commitment significantly less than the people who did not choose

For the hypotheses regarding the effect of choice on the tendency for selective exposure to information, not much support was found As compared to the people who did not choose, people who chose showed more preference for confirming information in the domains of locus of causality, alternative strategies, and anecdotal information. Moreover, over all the information categories, those who chose asked for more confirming information Yet, the total number of confirming information requested remained very low across all the groups

The lack of support for the hypothesis could be due to the following reasons First, in this experiment, choice was manipulated to induce internal justification motives The text was silent about whether the failure of the strategy was seen as the responsibility of the subjects or not Some subjects in the choice group might have felt responsible for the failure[11] and others not In that case, perceiving the implications of choice differently, the subjects in the choice group would have reacted differently to having chosen the strategy initially This is not

[11] If so then choice manipulation would have been confounded with the responsibility for consequences

desirable in an experimental setting and might have affected the results regarding information preference Hence, in the follow-up experiment, responsibility for consequences was also manipulated to study the effect of external justification motives independent of the internal justification motives This was also the initial purpose as pointed out in chapter 3 The second reason for the lack of findings could be that the information items were not clear to the subjects Hence, in the next experiment, wording of some of the items were changed Moreover, one extra information item was added to test whether individuals question the correctness of the reported performance (hypotheses 6a and 6b)[12]

Overall, this test experiment showed that the scenario used in the case is appropriate to study escalation situations Based on the results from this experiment, the two adjustments explained above are taken into consideration in the second experiments Another change made to the questionnaire was the operationalization of the felt-commitment A new measure was developed and used in the second experiment

4.3 Experiment two: effect of choice and responsibility for consequences

In this section, the second experiment will be explained in detail First, the operationalization of the independent and the dependent variables will be discussed Then, the detailed analysis of the data will be presented The full text of the experimental questionnaire, manipulation, and the dependent variables can be seen in appendix II

4.3.1 Experimental questionnaire and operationalization

4.3.1.1 Independent variables: Experimental manipulations

The experiment had a 3x2 design with the manipulations of choice (to induce internal justification motives), responsibility for decision consequences (to induce external justification motives), and information choice prior to the second investment decision Information choice was manipulated to control for eventual initial (regardless of escalation)

[12] A third reason could be the group used in the experiment The subject population was not a homogenous group Participation was on a voluntary basis and the subjects were from different faculties In the follow up experiments, care was taken to have a more homogeneous group of subjects

selective exposure tendencies. The conceptual model tested in this experiment is given in figure 4.4.

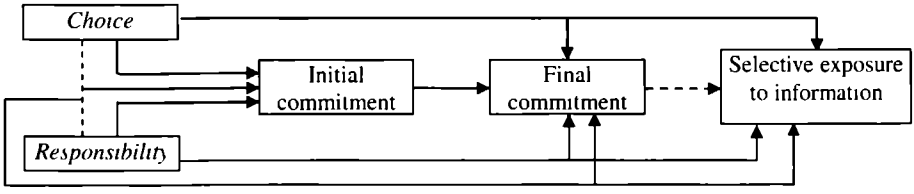


Figure 4.4: Conceptual model tested in experiment two. The manipulations are given in italics.

Manipulation of choice: Choice was manipulated in the same way as in the first experiment. Half of the subjects had the opportunity to make a choice between two strategies whereas the other half was asked to implement a strategy that the headquarters imposed on them.

Manipulation of responsibility: The subject population was randomly assigned to one of the two experimental groups: high-responsibility and low-responsibility. The subjects in the high-responsibility condition were told that they were to be held responsible by the headquarters:

> "You have recently been informed that you ***will be*** held personally responsible for the performance results attained in the coming years. The bonus you will receive ***will*** depend on the performance outcomes, that is, how well you meet the targets of the headquarters."

The subjects in the low-responsibility condition were assured that they would not be held responsible for the outcomes:

> "You have recently been informed that you will ***not*** be held personally responsible for the performance results attained in the coming years. The bonus you will receive will ***not*** depend on the performance outcomes, that is, how well you meet the targets of the headquarters, but ***will be a fixed percentage*** of your yearly salary."

Manipulation of opportunity to request information prior to the second investment decision: In order to control whether tendency for selective exposure to information existed prior to the occurrence of commitment escalation, a third manipulation was introduced. Half of the subjects were given the opportunity to indicate their information preference both prior

to the second investment decision and after. The other half only indicated their preference after the second investment decision.

4.3.1.2 Dependent variables

Measurement of commitment: Like in experiment one, two different measures of commitment were used: behavioral and attitudinal commitment. Behavioral commitment was operationalized as the amount of money invested in the strategy. To measure felt-commitment or attitudinal commitment[13], a new scale was developed based on the work of Lydon and Zanna (1990). Recognizing the different aspects of commitment (Meyer and Allen, 1984), Lydon and Zanna (1990) developed a three-item scale to measure commitment. The questions (Lydon and Zanna, 1990: 1042) were "To what extent do you feel committed to this project?" (face-valid question), "How attached are you to this project?" (as a measure of "an enthusiastic, bonding component of commitment), and "How obligated do you feel to pursue the project?" (as a measure of required, binding component of commitment). They asked their subjects to answer these questions on a seven-point scale. In this experiment, the subjects were given five statements and were asked to indicate the extent to which they agree with each of them using a seven-point Likert type response format (1: strongly disagree, 7: strongly agree). Three of these statements were adapted from Lydon and Zanna (1990). Two additional statements were added to measure the loyalty component (Kalleberg and Reve, 1993; Gilliland and Bello, 2002) and motivation-to-continue components of commitment. The statements were "I will stick to the discounting strategy" (motivation-to-continue component), "I do not feel any loyalty to the discounting strategy" (loyalty component), "I am committed to the discounting strategy", "I feel obligated to invest in the discounting strategy", and "I feel attached to the discounting strategy".

As in experiment one, to be able to investigate the change in commitment as a result of negative feedback, both measurements were taken twice, once before and once after receiving the decision consequences.

Measurement of reasons for the final commitment: To understand better why individuals escalate in their commitment, the participants were given eight statements on possible

[13] Strictly speaking, what is measured in the experiment is 'stated' felt-commitment

reasons and were asked to indicate the extent to which they agreed with them A seven-point Likert scale response type was used (strongly disagree – strongly agree) These statements were on different possible explanations (rational as well as irrational) individuals may have to re-invest in a failing course of action The statements were as follows 1) I decided to re-invest in the strategy so that I will not lose the headquarters' support 2) I chose to invest in this strategy in the past Deciding to stop now would undermine my reputation as a manager who makes consistent decisions 3) I thought the amount of money invested in 2005 was not enough to make this strategy work at its full potential Hence, I decided to invest more money to make sure that the strategy will work 4) I think some aspects of this strategy are good So I decided to invest some of the available funds to strengthen these aspects and keep the rest for developing and implementing another strategy 5) By re-investing in the strategy, I would like to show that my decision in 2005 was a correct one 6) I want to keep on supporting this strategy because I have already invested so much time and money in it 7) I do not think we have enough information to evaluate this strategy thoroughly By re-investing in this strategy, I would like to have time to collect additional information to understand its effects better 8) I decided to re-invest in the strategy, because I did not think that the performance results were bad

Each of the reasons was analyzed to see whether subjects in different experimental groups used different reasons for explaining their final commitment level

Measurement of information preference: confirmation bias: Confirmation bias was measured in the same way as in experiment one Subjects were asked to indicate the information content they would prefer for each information item The style of the questions and the information items were the same as in experiment one (see table 4 1) There was an additional item on how much the respondent would like to receive a report "showing that the performance outcomes of the last five years are actually much better than they were stated in the performance evaluation of the headquarters" They were asked to indicate their preference on a seven-point Likert-type response format (1 I would not like to see this report, 7 I would very much like to see this report)

Like in experiment one, two measures were used percentage of people choosing confirming information per item and the total number of confirming items chosen per individual

4.3.1.3 Other questions and post-experimental questionnaire

After both investment decisions, the confidence of the respondents in the strategy as well as the responsibility they felt for the choice and results of the strategy were measured At the end of the experiment, a post-experimental questionnaire was administered with manipulation check and demographic questions The manipulation check for choice was done by asking to what extent the subjects felt that someone other than him or herself made the choice of the strategy (1 to no extent, 7 to a very large extent) The manipulation check for responsibility was done by asking whether the subjects thought that the headquarters held them responsible for the performance results of the strategy Moreover, two questions were asked to check whether the performance feedback was perceived as negative by the respondents Finally, demographic questions on date of birth, nationality, gender, and past educations were asked

4.3.2 Results

4.3.2.1 Manipulation checks

To evaluate the effectiveness of the choice and responsibility manipulations, the responses of the subjects to the manipulation check questions were analyzed Manipulation check for choice showed that compared to the choice group, the subjects in the no-choice group felt more that someone other than themselves made the choice of the strategy ($Mean_{Choice}$ = 3 70 and $Mean_{No\ choice}$ = 5 28, t = 6 518, $p < 0\ 001$) The choice manipulation was the only significant main effect on this question For the responsibility manipulation, 83% of the high-responsibility subjects indicated that they felt they were held responsible whereas in the low-responsibility group, this percentage was 5% (t = -15 843, $p < 0\ 001$) Responsibility manipulation was the only significant main effect for this question However, choice manipulation had a marginally significant main effect (F (1, 158) = 2 865, $p < 0\ 1$) as well This means that choosing a strategy created differences in how responsible the subjects felt

Further checks were done to see whether the choice or responsibility manipulations affected the way the subjects perceived the decision consequences ANOVA showed no significant results The overall mean was 3 368 (± 0 097) (1 very negative, 7 very positive)

Whether a person was assigned to or chose strategy A or B did not make any difference in terms of the commitment they had to the strategy

A preliminary analysis also showed that the choice subjects felt more confidence in the strategy and felt responsibility for both the choice and the results of the strategy

Finally, the reliability of five items to measure the attitudinal commitment was 0 804 (Cronbach's Alpha) The factor analysis run on the same items also indicated that all the items loaded on a single factor The factor loadings are given in table 4 4

Table 4.4: Factor analysis results for the commitment measure

Items in the commitment measure	Factor loadings
I will stick to the discounting strategy	0 732
I do not feel any loyalty to the discounting strategy	0 763
I am committed to the discounting strategy	0 744
I feel obligated to invest in the discounting strategy	0 684
I feel attached to the discounting strategy	0 822

4.3.2.2 Analysis for commitment and escalation of commitment

Analyses were performed for the initial commitment, final commitment, and the difference in commitment

The initial commitment was measured right after the subjects were informed of their role in the company but before receiving the performance feedback with the decision consequences They were asked to indicate how much of the available funds they would invest in the strategy and to answer five questions to measure their behavioral and attitudinal commitment levels, respectively

With respect to behavioral commitment, there was no difference in the amount of the initial average investment between the choice and no-choice groups The overall average was 3,914,688 (± 90,075) Responsibility did not have any effects on the commitment level

With respect to attitudinal commitment, choice had a significant main effect on the average felt-commitment ($Mean_{No\ choice}$ = 4 94 and $Mean_{Choice}$ = 5 57, (F (1, 159) = 13 894, p < 0 001) Responsibility did not have any effects on the commitment level

The choice manipulation led to a difference in the felt-commitment levels but not in the amount of money invested This shows that there is a difference between the attitudinal and behavioral commitments

Analysis for escalation of commitment was done in two ways First, as in previous work, final commitment was analyzed Second, for change in commitment, final commitment was analyzed while controlling for the initial commitment and the difference between the initial and final commitment levels was analyzed

First, to investigate whether escalation took place, analysis on *final commitment* was performed Consistent with the prior work on escalation and experiment one, significant differences existed between the groups (see table 4 5 for the averages)

ANOVA for behavioral commitment run on the amount of money invested indicated a significant main effect for the choice (F (1, 159) = 8 573, $p < 0$ 005) manipulation People who chose a strategy (mean = 3,246,262) invested more than those on whom a strategy was imposed (mean = 2,391,941) This shows the existence of the escalation bias There were no significant effects for the responsibility manipulation Whether the subjects were held responsible for the consequences did not make any difference in terms of further commitment

ANOVA for attitudinal commitment showed similar results There was a significant main effect for the choice (F(1,159) =12 265, $p < 0$ 005) manipulation People who could choose a strategy (mean = 4 839) invested more than those on whom a strategy was imposed (mean = 4 062)

These results indicate the existence of escalation of commitment to a failing course of action, both at the attitudinal and behavioral levels Choice, on its own, was responsible for the escalation

Table 4.5: Averages for the final commitment levels Standard deviations are given in parentheses

Commitment after performance feedback		Behavioral commitment (max 5 million)		Attitudinal commitment (range 1-7)	
		Responsibility			
		Low-responsibility	High-responsibility	Low-responsibility	High-responsibility
Choice	No-choice	2,531,250 (294,173)	2,252,632 (301,815)	4 025 (0 224)	4 100 (0 229)
	Choice	3,178,571 (287,083)	3,313,953 (283,725)	4,762 (0 218)	4,916 (0 216)

Additional analysis was done to see how commitment changed after the receipt of the negative decision consequences First, final commitment was analyzed while controlling for the initial commitment Second, the difference between the two commitment levels was analyzed Both analyses gave the same result regarding escalation

ANOVA for *final commitment while controlling for the initial commitment* (see table 4 6) for money invested returned a significant main effect for the choice manipulation ($F(1, 158) = 8\ 732$, $p < 0\ 005$) and a significant effect for initial money invested ($F(1,158) = 8\ 591$, $p < 0.005$) For felt-commitment, there was a marginally significant main effect for the choice manipulation ($F\ (1,158) = 3\ 911$, $p < 0\ 1$) and a significant effect for initial felt-commitment ($F(1,158) = 38\ 290$, $p < 0\ 001$)

Table 4.6: Averages for the final commitment level while controlling for the initial commitment Standard deviations are given in parentheses

Final commitment while controlling for the initial commitment		Behavioral commitment (max 5 million)		Attitudinal commitment (range 1-7)	
		Responsibility			
		Low responsibility	High-responsibility	Low responsibility	High-responsibility
Choice	No-choice	2,507,684[1] (287,505)	2,289,923[1] (295, 133)	4 313[3] (0 207)	4 191[2] (0 207)
	Choice	3,220,357[1] (280,828)	3,262,107[1] (277,750)	4 634[2] (0 197)	4 693[2] (0 197)

Evaluated at covariates appeared in the model [1]initial money invested = 3,917,177, [3]initial felt-commitment = 5 217

Further analysis was done on the difference between the initial and final commitment measures (see table 4 7) The results for behavioral and attitudinal commitments differed from one another For difference in the amount of money invested, ANOVA showed a significant effect for the choice manipulation ($F(1, 159) = 7\ 210$, $p < 0\ 01$) That is, subjects who did not choose a strategy decreased the amount of money invested more than the subjects who chose On the other hand, for difference in felt-commitment, there were no significant effects All the subjects decreased their felt-commitment with an overall average of 0 756 (± 0 102)

Based on these tests, it is possible to conclude that regardless of the initial investment, choice leads to behavioral escalation This finding is consistent with the first experiment All the subjects decreased their commitment after the negative performance feedback but those

who chose the initial strategy decreased it less. As for attitudinal commitment, the results are less strong. Even while controlling for the initial commitment, final felt-commitment was higher for the choice subjects. However, choice had no effect on the change in commitment[14].

Table 4.7: Average differences in the behavioral and attitudinal commitment levels. Standard deviations are given in parentheses.

Difference between the initial and final commitments		Behavioral commitment (max. 5 million)		Attitudinal commitment (range: 1-7)	
		Responsibility			
		Low-responsibility	High-responsibility	Low-responsibility	High-responsibility
Choice	No-choice	-1,450,000 (308,641)	-1,563,158 (316,659)	-0.770 (0.206)	-0.984 (0.211)
	Choice	-625,000 (301,203)	-744,186 (297,680)	-0 643 (0.201)	-0.628 (0.198)

Finally, in order to test the conceptual model for this experiment, a *path regression* analysis was performed. Choice, responsibility, and their interaction were regressed on the initial commitment while choice, responsibility, their interaction, and the initial commitment were regressed on the final commitment. The results are shown in figures 4.5a (for behavioral commitment) and 4.5b (for attitudinal commitment).

For money invested ($AdjR^2$ = -0.009, $F(3, 159) = 0.493$, $p = 0.688$ and $AdjR^2 = 0.030$, $F(4, 158) = 2,257$ $p < 0.1$), neither of the manipulations had a significant effect on the initial investment. Choice manipulation was the only significant effect ($t = 2.834$ $p < 0.05$) on final money invested.

For felt-commitment ($AdjR^2 = 0.077$, $F(3, 159) = 5.525$, $p < 0.005$ and $AdjR^2 = 0.235$, $F(4, 158) = 13,473$ $p < 0.001$), choice had a significant main effect on the initial investment ($t = 3.727$ $p < 0.001$). Even though choice also had a marginally significant effect ($t = 1.978$ $p < 0.06$), the main determinant for the final felt-commitment was the initial commitment level ($t = 6.188$ $p < 0.001$).

[14] An additional analysis was performed for the difference measures in order to see whether the initial commitment affects the change in commitment. ANOVA for the difference in investment while controlling for the initial investment returned significant effect for the choice manipulation ($F(1, 158) = 8\,732$, $p < 0\,005$) and initial money invested ($F(1, 158) = 25.381$, $p < 0.001$). ANOVA for the difference in felt-commitment while controlling for the initial commitment returned marginally significant effect for choice ($F(1, 158) = 3\,911$, $p < 0.1$) and initial felt-commitment ($F(1, 158) = 8.286$, $p < 0\,01$). The mean changes in all variables: behavioral commitment: $Mean_{choice}$ = -675,946 (197,171), $Mean_{no\text{-}choice}$ = -1,518,375 (205,887)

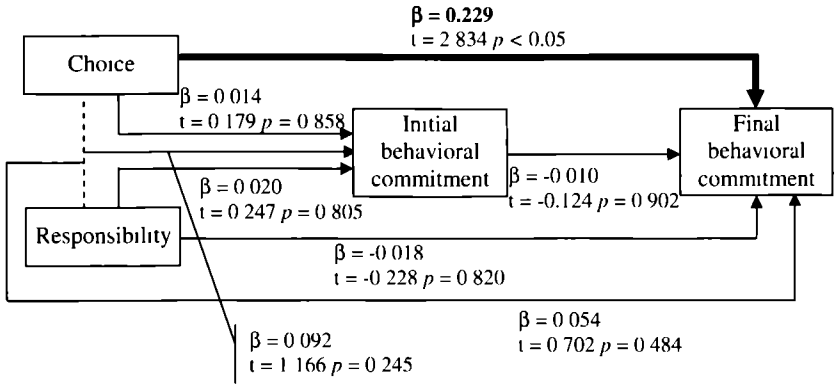


Figure 4.5a: Results for path regression for the conceptual model of experiment two: behavioral commitment.

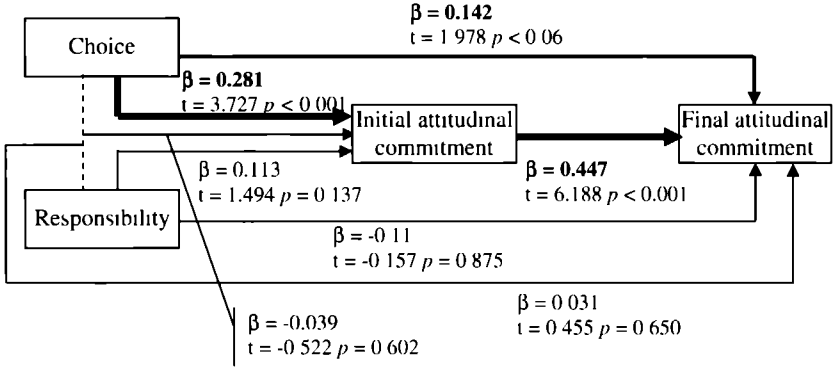


Figure 4.5b: Results for path regression for the conceptual model of experiment two: attitudinal commitment.

Summary for commitment: Both behavioral and attitudinal commitment levels were measured. Behavioral commitment was operationalized with the amount of money invested and attitudinal commitment with five items. Commitment was measured both before and after the receipt of negative decision consequences. Both final commitment and the difference between initial and final commitment levels were used to understand how escalation of commitment works at the behavioral and attitudinal levels.

At the behavioral level, the results were the same as in experiment one. The initial money invested did not differ between the choice and no-choice groups. However, those who chose their strategy decreased their investment level less than those who did not. Hence, after the failure feedback, the amount of money invested by the choice subjects was more than that invested by the no-choice subjects. This difference in final money invested is consistent with the previous research on escalation. At the attitudinal level, on the other hand, initial felt-commitment differed between the choice and no-choice groups. The choice subjects reported that they felt more committed to the strategy initially than the no-choice subjects did. The decline in felt-commitment was the same for all the groups. Yet, due to their initial higher commitment, the choice subjects ended with higher final felt-commitment than the no-choice subjects did. The change in commitment levels and the final commitment levels can be seen in figure 4.6. Responsibility did not have any effect on either of the measures.

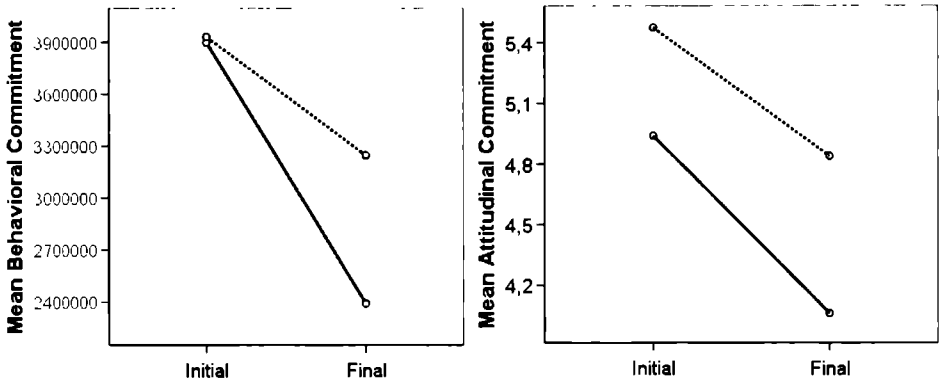


Figure 4.6: Mean initial and final behavioral and attitudinal commitment levels. Solid (dotted) line is for no-choice (choice) group

It is interesting to see the difference between behavioral and attitudinal commitments. It appears that initially, the no-choice subjects invested money for reasons other than the commitment they felt for the strategy. This confirms the reasoning from the first experiment. Given the headquarters' desire to implement the strategy, the no-choice subjects must have felt obliged to invest in it even though they did not feel committed to it. Due to this difference in the initial felt-commitment, the choice and no-choice subjects reacted differently to the negative decision consequences. Even though the decline in felt-commitment was of the same

magnitude for both groups, the no-choice subjects decreased their investment significantly more than the choice subjects and ended with significantly less investment

These higher final commitment levels of subjects in the choice group are consistent with the previous literature Given the escalation tendencies, it is important to understand why individuals remain committed to failing courses of action One of the possible explanations in the literature is based on the motives of internal and/or external justification of the initial choice In a strategic decision-making situation, people can have different causes for investing in seemingly failing courses of action, both rational and irrational They might indeed invest because they feel responsible and/or want to save face Yet, fear of losing supervisor's support can be an equally likely motive In this experiment, participants, who invested money after the failure feedback, were given eight statements of possible reasons for reinvestment (see table 4 8) The analysis of the subjects' answers indicates that some of these reasons applied to the choice subjects but not to the no choice subjects Table 4 8 shows the correlations between the final commitment levels and the reasons as well as the results for ANOVA testing for the effects of choice and responsibility manipulations Correlations indicate that the more committed the subjects were after failure the more they felt that they had not invested enough initially (reason 3), the less they had the intention to save part of the money for another strategy (reason 4, no correlation with felt commitment), the more they felt that by reinvesting, they would like to show that their previous decision was correct (reason 5, no correlation with money invested), and the more they thought that the performance results were not bad (reason 8) Results from ANOVA, showed that choice led to increased will to show the correctness of the previous decision (reason 5) and decreased intention to keep part of the money for another strategy (reason 4) Responsibility, on the other hand, caused re-investment to save reputation as a consistent decision-maker (reason 2) and a will to collect additional data (through reinvesting) to understand the strategy's effects better (reason 7) Overall, people who made the initial choice or were held responsible explained the causes for their further investment with less rational reasons, such as will to save face Moreover, by judging the performance outcome less negative than the no-choice subjects, the choice subjects showed a tendency for biasing an objective information item, a tendency which constitutes the main claim of this research

Table 4.8: Analysis of the reasons indicated for re-investment after failure feedback

		Reason 1	**Reason 2**	**Reason 3**	**Reason 4**	**Reason 5**	**Reason 6**	**Reason 7**	**Reason 8**
Correlations	**Final behavioral commitment**	-0 045	-0 027	**0.246****	**-0.348*****	0 135	-0 095	0 052	**0.148**†
	Final attitudinal commitment	-0 118	0 000	**0.208***	-0 139	**0.277****	-0 046	0 041	**0.291****
ANOVA	**Choice**	Nothing significant Overall mean 3 538 ± 0 150		Nothing significant Overall mean 4 258 ± 0 154	**F(1, 136) = 4.391***	**F(1, 136) = 6.745***	Nothing significant Overall mean 3 674 ± 0 154		Nothing significant Overall mean 3 500 ± 0 120
	Responsibility		**F(1, 136) = 2.902**†					**F(1, 136) = 4.3721***	
	Interaction								

$^{\dagger}p < 0.1$; $^{*}p < 0.05$; $^{**}p < 0.005$; $^{***}p < 0.001$

Reason 1 I decided to re-invest in the strategy so that I will not lose the headquarters' support

Reason 2 I chose to invest in this strategy in the past Deciding to stop now would undermine my reputation as a manager who makes consistent decisions

Reason 3 I thought the amount of money invested in 2005 was not enough to make this strategy work at its full potential Hence, I decided to invest more money to make sure that the strategy will work

Reason 4 I think some aspects of this strategy are good So I decided to invest some of the available funds to strengthen these aspects and keep the rest for developing and implementing another strategy

Reason 5 By re-investing in the strategy, I would like to show that my decision in 2005 was a correct one

Reason 6 I want to keep on supporting this strategy because I have already invested so much time and money in it

Reason 7 I do not think we have enough information to evaluate this strategy thoroughly By re-investing in this strategy, I would like to have collect additional information to understand its effects better

Reason 8 I decided to re-invest in the strategy, because I did not think that the performance results were bad

Effect of indicating information request prior to the second investment decision: After the initial investment decision, but before receiving the decision consequences, half of the subjects was asked for their information preference on five information items predicted future performance, locus of causality, stability of causes, alternative strategies, and anecdotal information on similar companies In the analysis presented above, these, so-called prior information and no-prior information groups were merged together This is because indicating information preference prior to the second investment decision had marginal effect on subsequent commitment The effect of choice as explained above remained unchanged But there was also an interaction effect of responsibility and information (behavioral $F(1, 155) = 3\ 158$, $p < 0\ 1$, attitudinal $F(1, 155) = 3\ 134$, $p < 0\ 1$) such that for high responsibility subjects, indicating the information preference led to higher escalation and for low-responsibility subjects, indicating the information preference led to lower escalation Given this curious result, the sample population was split in two and the analysis was re-done

For subjects that indicated their information preference, choice and responsibility did not have any effects on either final behavioral commitment or change in commitment (both behavioral and attitudinal) On final attitudinal commitment, however, there was a significant effect of choice ($F(1,69) = 7\ 235$, $p < 0\ 01$) and a marginally significant effect of responsibility ($F(1, 69) = 3\ 379$, $p < 0\ 1$) Both choice and responsibility led to attitudinal commitment, the highest escalation was in the choice and high-responsibility subjects

For subjects who were not asked for their information preference, the results were similar to those explained in the above section For final behavioral and attitudinal commitment levels as well as the change in behavioral commitment, there was a significant effect of choice For change in attitudinal commitment, there was a marginally significant effect of choice

From these results, it is possible to conclude that thinking over preferred information and indicating the preference prior to the second investment decision takes away the effect of choice on escalation, at least, at the behavioral level This result is consistent with those that were reported by Conlon and Parks (1987) who found that indicating information preference decreased escalation tendencies

4.3.2.3 Analysis for information preference under escalating commitment

In this experiment, half of the subjects identified their preference for information both before and after the second investment decision The analysis of the information preference prior to the second investment decision involved the following information items predicted future performance, locus of causality, stability of causes, alternative strategies, and anecdotal information on similar companies ANOVA run on the percentage of people preferring confirming information returned only one marginally significant effect for responsibility ($F(1, 150) = 3\,439$, $p < 0\,1$) and this was for the information item alternative strategies 18 4% of the high-responsibility subjects wanted the confirming information, i e that the current strategy is better than the alternatives This percentage was 41 7% for the low responsibility subjects It seems that being held responsible generates a tendency to look for the *disconfirming* information in this information category In neither of the other categories, confirmation or disconfirmation tendency was observed Overall, it can be said that selective exposure to information did not exist prior to the escalation situation Hence any such tendency observed in the second round could be attributed to the occurrence of escalation

Analysis also showed that indicating their information preference prior to the second investment decision did not have any effect on the information preferences after the second investment decision Hence, for the remaining analysis prior and no-prior information groups were put together

The hypotheses in chapter 3 stated the expectation regarding the effect of choice and responsibility on information preference In hypotheses set *a*, it was indicated that people who chose the implemented strategy are expected to selectively search for confirming information In hypotheses set *b*, it was indicated that people that are held responsible for the consequences of the implemented strategy will selectively search for confirming information

To test these hypotheses, analyses were done on two dependent variables The first one was the percentage of people choosing the confirming information in each information category Each category was analyzed separately, hence, there was a dependent variable for each category Second, an overall dependent variable was created by counting the total number of confirming information items chosen by each subject For each dependent variable, the following three analyses were performed

1) Each experimental group was inspected to see whether there is a difference in terms of their preference for confirming information The percentage of people asking for confirming information and the percentage asking for disconfirming information were compared with one another The purpose was to see whether in any of the groups there was a preference for confirming information
2) ANOVA was performed for each information item to check for the effect of the experimental manipulations
3) The correlations between the final commitment levels and the choice for confirming information was calculated in order to see whether commitment level was associated with choosing confirming information

Below, the results will be given per information category Table 4 9 includes the results on the percentage of people per experimental group choosing for the confirming or disconfirming option and the significance level that indicates whether significantly more people chose for either of the options In each category, the confirming item is defined as the information that would confirm the goodness of the implemented strategy This item is shown bold and italic

For the information category *predicted future performance*, the respondents could either choose for information on the likelihood of future success or likelihood of failure Looking at the percentages of people choosing for the confirming item, i e success information, in the four experimental groups showed an interesting contrast between the groups 'no-choice and low-responsibility' and 'choice and high-responsibility' Whereas the majority in the former preferred information indicating that further implementation of the strategy will bring failure to the company the latter preferred the success information ANOVA run on the percentage of subjects choosing for an estimate of future success gave marginally significant main effects for both the choice ($F(1, 159) = 3\ 250$, $p < 0\ 1$) and responsibility ($F(1, 159) = 3\ 135$, $p < 0\ 1$) manipulations This indicates that the percentage of people favoring information on predicted future success was higher in the choice group than in the no-choice group and in the high-responsibility group than in the low-responsibility group Even though the difference is not significant, the highest percentage choosing confirming information was in the 'choice – high-responsibility' Given these results, there is marginal support for the hypotheses 1a and 1b

Table 4.9: Information preferences per experimental group in experiment two.

N	Choice	Responsibility	**Predicted future performance**		**Locus of causality**		**Stability of causes**		**Alternative strategies are**		**Anecdotal information**		**Perceived correctness of the reported performance**
			Success	Failure	Internal	***External***	Permanent	***Temporary***	***Worse***	Better	***Success***	Failure	**Better** than reported (max. 7)
42	Choice	Low	0.48	0.52	0.62	0.38	**0.86*****	0.14	0.31	**0.69***	0.57	0.43	5.67
43	Choice	High	**0.63**†	0.37	**0.67***	0.33	**0.88*****	0.12	0.40	0.60	**0.63**†	0.37	5.67
40	No-choice	Low	0.35	**0.65**†	**0.69***	0.31	**0.97*****	0.03	0.23	**0.77*****	0.60	0.40	5.43
38	No-choice	High	0.47	0.53	**0.74****	0.26	**0.89*****	0.11	0.24	**0.76****	0.58	0.42	5.68
			Two interesting results are the success information preference of the 'choice – high-responsibility' subjects and the failure information preference of the 'no-choice – low-responsibility' subjects.		In each group, the majority preferred to hear that the causes of failure were ***internal.***		In each group, the majority preferred to hear that the causes of failure were ***permanent.***		In each group, the majority preferred information indicating that the ***alternative strategies were better***. This preference was not significant in the 'choice – high-responsibility' group.		Only those in the 'choice – high-responsibility' group showed significant results. They preferred to hear about ***success*** stories.		No effect of choice or responsibility.

$^{\dagger}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.005$, $^{***}p < 0.001$

For the information category *locus of causality*, percentages showed that the majority of the subjects preferred to hear that the failure was due to internal causes ANOVA run on the percentage of subjects choosing for internal causes did not return any significant results The majority of the subjects (Mean = 0 681 ± 0 037) in all the groups preferred to hear that the causes of failure were endogenous Overall, given these results, hypotheses 2a and 2b are rejected

For the information category *stability of the causes*, ANOVA returned no significant effects Almost all the subjects (mean 90 2% ± 2 4%) preferred to hear that the causes of failure were permanent Given this result, hypotheses 3a and 3b are rejected

For the information category *alternative strategies*, in all the groups, except for the 'choice and high-responsibility' group, the majority preferred the information that the alternative strategies are better In the 'choice and high-responsibility' group, even though in the same direction, this preference was not significant ANOVA returned a marginally significant main effect for the choice ($F(1, 158) = 3\ 090$, $p < 0\ 1$) manipulation indicating that the more of the subjects who chose the strategy wanted to hear that their strategy was better than the alternatives Given these results, hypothesis 4b is rejected but there is marginal support for hypothesis 4a

For the information category *anecdotal information on similar companies*, ANOVA showed that none of the manipulations had a significant influence on the preference of the subjects However, looking at the individual groups showed that the groups in which the subjects could choose their strategy and were held responsible, the majority preferred to hear success stories (63% success vs 37% failure, $p < 0\ 1$) Hence, even though hypotheses 5a and 5b are not supported there is an indication that choice and responsibility are associated with the preference to hear success stories

For the information category *correctness of the reported performance*, the subjects were not asked to make any choice but to indicate how much they would like to see a report showing that "the performance outcomes of the last five years are actually much better than they were stated in the performance evaluation of the headquarters" They had to indicate their preference on a seven-point Likert-type response format (1 I would not like to see the report, 7 I would very much like to see this report) ANOVA returned no significant results Hence, hypotheses 6a and 6b are rejected

For the information category *costs associated with implementing the strategy*, the majority of the subjects (overall mean 84% (± 2 9%)) in all the four groups preferred to have information on the future costs ANOVA returned a significant main effect for the choice

manipulation ($F(1, 158) = 4\,090$, $p < 0\,05$) This means that significantly less of the subjects (mean 78% (±4%)) who chose the strategy asked for information on future costs Even though the choice subjects, as compared to no-choice subjects, showed less preference, it still remains that majority of the choice subjects (78%) requested information on future costs Given these results, hypothesis 7b is rejected but there is marginal support for hypothesis 7a

Correlation analysis between the final commitment measures and the percentages choosing for confirming information for each report returned only once significant result Both final behavioral (Pearson = 0 168, $p < 0\,05$) and attitudinal commitment (Pearson = 0 233, $p < 0\,005$) levels showed positive correlations with the information category alternative strategies indicating that the more committed people remained to a strategy the more they wanted to know that the strategy is better than the alternatives

ANOVA run on the *total number of confirming items* gave a significant main effect for the choice manipulation ($F(1, 156) = 7\,741$, $p < 0\,01$) indicating that the subjects who chose the strategy to be implemented favored more confirming items This result gives support for hypothesis 8a However, it should be pointed out that, like in the first experiment, the subjects (including those in the choice group) preferred to have more disconfirming items than confirming ($Mean_{Choice} = 2\,2$ vs $Mean_{No\ choice} = 1\,67$ out of a total of six items) Calculating confirmation bias as the difference between the number of chosen confirming and disconfirming pieces of information (Fischer et al 2005) indicates the existence of disconfirmation bias ($Mean_{Choice} = -1\,595$ vs $Mean_{No\ choice} = -2\,652$, $F(1,156) = 7\,771$, $p < 0\,01$) Given this situation, those who made the initial choice still favored more confirmation or less disconfirmation, than those who did not Given this result, there is support for hypothesis 8a, but hypothesis 8b is rejected

Finally, through path regression, the total conceptual model was tested In figures 4 7a (behavioral) and 4 7b (attitudinal), only the significant effects are shown The effects significant at 5% (10%) are shown in thick (thin) lines

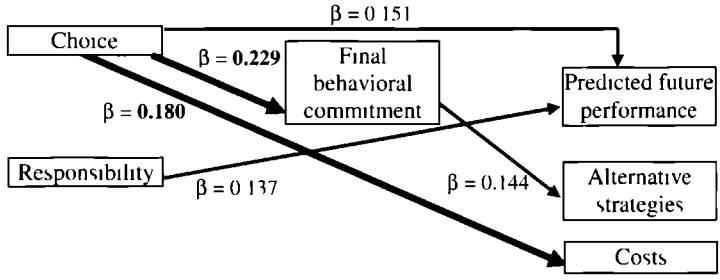


Figure 4.7a: Results for path regression for the conceptual model of experiment two: behavioral commitment.

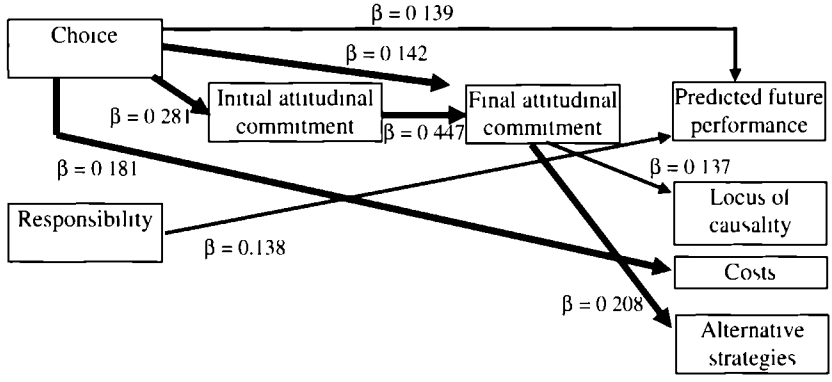


Figure 4.7b: Results for path regression for the conceptual model of experiment two: attitudinal commitment.

Summary for information preference: As in experiment one, the subjects in this experiment had the tendency to search for more disconfirming information rather than confirming information. However, those who made the initial choice asked for more confirming information than others. Therefore, it is possible to conclude that choice leads to selective search for confirming information. Responsibility had no effect on selective exposure tendencies.

As for the individual information items, information on predicted future performance, alternative strategies, and anecdotal information on similar companies were the items that triggered search for confirming information for the choice group. The majority in the "no-choice and low-responsibility" group preferred to hear likelihood of future failure whereas the majority in the "choice and high-responsibility" group preferred to hear likelihood of

future success In the same way, whereas the majority, in general, preferred the information that the alternative strategies were better than the current strategy those in the choice group preferred the information that their strategy was better than the alternatives Likewise, the majority in the 'choice and high-responsibility' group preferred success stories regarding similar restaurant chains that implemented the same strategy In the other information categories, there were no significant results In all the groups, the majority wanted to hear that the causes of failure were internal and permanent and wanted to have information on the future costs rather than the sunk costs These were the expectations for the no-choice and low-responsibility groups but not for the choice and high-responsibility groups

The overall conclusion from these findings can be that when information is related to the performance of the strategy, choice leads to selective exposure to confirming information On the other hand, when information is diagnostic, like for instance the causes of the failure, or related the to costs, choice does not trigger confirming information search Being held responsible for the consequences does not seem to have any effect on selective exposure tendencies

4.4 Conclusions and discussion

In this chapter, two experiments were reported Based on these experiments, hypotheses regarding the effects of choice and responsibility on selective exposure to information were tested The results from these experiments can be summarized in three different domains i commitment and escalation, ii motives for escalation, and iii information preference Each of these will be looked at in turn

Commitment and escalation: Regarding commitment and escalation, the results from both experiments support the results from previous escalation research Subjects who choose the strategy to be implemented feel more committed to it and invest more money in it even after facing negative consequences There were two main differences between this experiment and the prior experiments on escalation First, in both of the experiments, commitment was measured twice, once before and once after the performance feedback Second, commitment was operationalized in two different ways In the escalation literature, the measure of commitment has always been money invested in the chosen course of action This is a

measure of behavioral commitment In these experiments, alongside behavioral commitment, attitudinal commitment was also measured The subjects did not only decide on the amount to invest but also reported how committed they felt to the strategy The overall results showed differences between behavioral and attitudinal commitments as well as how commitment levels change due to negative consequences

The results can be summarized as follows Responsibility for decision consequences did not have any effect on escalation. Choosing a strategy was enough for generating escalation However, the way choice led to escalation was different with respect to the behavioral and attitudinal commitments At the behavioral level, choice did not affect the initial commitment, but the amount of change in the commitment Those who made the initial choice decreased their investment less than those who did not make the initial choice At the behavioral level, on the other hand, choice affected the initial commitment but not the change in the commitment level Those who made the initial choice felt more committed at the beginning Even though the decrease in the felt-commitment was the same in both groups, given their high initial commitment level, people who made the initial choice felt more committed to the strategy after the negative decision consequences (see figure 4 6)

These results show that looking at the change in commitment along with a single-time measure gives richer information on commitment and escalation The escalation of commitment literature has been pointing out that people who choose a strategy keep on being committed to it due to feelings of responsibility created by initial choice The findings from this research concur with this accepted wisdom and extend it by showing the difference between the choice and no-choice groups Choosing a strategy, people feel highly committed and make a high investment What is striking is that people who did not choose the strategy invest as much money initially as the choice group even though they do not feel as committed Upon hearing the negative consequences, the commitment levels decrease for everyone and the magnitude of the decrease in felt-commitment is the same for both groups However, even though the people who chose the strategy decrease their investment proportional to the decrease in the commitment they feel, those who did not choose decrease their investment drastically This means that decision-makers who invest in a strategy might do so without feeling committed to it The danger is that these decision-makers might not put enough effort into enabling a good implementation or might pull the plug too soon at the first sign of negative feedback As such, in real life, the initial lack of felt-commitment towards

the strategy might actually be a reason for failure Even though investing in a failing strategy is not always the rational course of action, in certain circumstances, sticking out with a course of action a little longer could pay back

Motives for escalation: In the second experiment, reasons for continued investment to a failing course of action were studied Choosing the strategy and being held responsible for its consequences trigger motives useful for rationalizing the continued investment Overall, due to initial choice and higher final commitment, decision-makers want to show to others that their previous decision was correct Moreover, they perceive that the performance outcomes were not all that bad and they do not want to save money for other strategies Those who continue to invest also rationalize their investment by perceiving their initial investment as not being enough Responsibility for consequences, on the other hand, stimulates face saving motives Decision-makers who are held responsible want to be seen as consistent decision-makers They also rationalize by indicating that by re-investment, they can understand the strategy better Overall, these results show that factors that lead to escalation and escalating commitment itself trigger motives useful for the justification of the initial and continued investments These results give further support for the justification explanation of escalation

Selective exposure to information: The overall expectation of antecedents of escalation inducing confirming information search was met In both experiments, the subjects who chose the initial strategy asked for more confirming information than those who did not choose However, the total number of confirming items requested remained very low It is possible that with these few items, the decision-makers have enough to decrease dissonance and justify their actions This reasoning is strengthened by the realization that the preference for confirming information was in the items related to the performance of the strategy For the information items predicted future performance, alternative strategies, and anecdotal information, choice triggered selective exposure to information This information can be used to back-up the reasoning that 'everything is going to work out, further investment will lead to success' On the other hand, when the information was diagnostic or related to costs, no tendencies for selective exposure were observed It is possible that the two items with a diagnostic nature, i e locus of causality and stability of causes, and the information on costs, are used for purposes other than justification For instance, if a decision-maker knows that the causes of failure are endogenous and permanent then he or she can use this information to eliminate these causes and improve the strategy This is also consistent with Festinger's

(1964) claim that in situations where information is seen useful for future decisions, dissonant information is not avoided As for the cost information, it is possible that given the experimental setting, the subjects felt that they already knew what the sunk costs were and hence, requested information on the future costs It is also possible that sunk cost is only a tool for self-justification and that individuals do not use sunk cost to justify their choice to other people

4.5 Summary

In this chapter, the results of two experiments were discussed The effect of two antecedents of commitment, choice and responsibility for decision consequences, on escalation and selective exposure to information was shown Whereas no effects could be found for responsibility, choice was shown to lead to escalation in commitment as well as selective exposure to information Different information categories were discussed and amongst these, the selective exposure tendencies were seen in categories related to the performance of the strategy For diagnostic and cost-related information, no such tendency was observed

Chapter 5

Effect of initial commitment on selective exposure to information

In chapter 3, four antecedents of escalation and dissonance arousal were identified as the factors to be studied in this thesis Two of these, namely choice and responsibility for the decision consequences, were studied in chapter 4 In this chapter, the focus will be on the other two variables, namely initial commitment and decision consequences Even though initial commitment is an antecedent of dissonance arousal it has not received attention in the escalation literature This is mainly because making the initial choice has generally been seen as the initial commitment to an action The reader might realize that the experiments discussed in chapter 4 also included initial commitment, but this was not as an independent variable The analysis indeed showed that the initial commitment level is important in determining the final commitment level The analysis also showed that only initial attitudinal commitment was induced by choice but not the behavioral commitment This finding gives further support for studying the effect of initial commitment on escalation and selective exposure to information as pointed out in chapter 3 The second variable that will be studied is the decision consequences, a variable that is important for both dissonance arousal and escalation of commitment It is commonly accepted that negative decision consequences is what leads to dissonance and escalation However, Schoorman and Holahan (1996) showed the importance of the consistency between choice and consequences (rather than negative consequences) in generating escalation (see chapter 2 for further discussion) Therefore, decision consequences will be studied alongside initial commitment

First, the general experimental design and operationalization of the independent and dependent variables will be explained Then, the results will be discussed Finally, the conclusions and discussions will be presented

5.1 General experimental design

5.1.1 Case information and general design

The case used in this experiment was developed by the author and was about a supermarket chain that is in need of a new strategy to implement. The general design of the experiment was similar to the previous two experiments.

Upon arriving at the room where the experiment took place, the participants were asked to take a seat. The material they would work on was set ready on the tables. The first page of the experimental questionnaire included written general instructions on how they should proceed. In these instructions, the importance of getting into the role to which they were assigned was stressed. First, the respondents were asked to read one-and-a-half page information on the company and their role. The company in the case was a large, successful, nation-wide, high-quality supermarket chain that was facing some problems regarding profits and market share. Hence, there was a need for a new strategy. The subjects were told that they were a long-term member of the board of directors of this chain and the board was going to decide on the new strategy. The new strategy, i.e. the discounting strategy, was presented to them in the case description. The manipulation of *commitment* was embedded in this description. Half of the subjects were informed that they were strongly supporting the discounting strategy and thought it would lead to an improvement in the situation of the chain. The other half was informed that they were strongly against this strategy and thought that implementing the strategy would lead to the demise of the company. The full text of the manipulation can be seen in appendix II.

After this, the subjects in the committed (not-committed) group were asked to write a short paragraph on why they thought the discounting strategy is (not) a good strategy. This exercise was meant to strengthen the commitment manipulation (Schwarz et al., 1980). Then, all the subjects answered the experimental questionnaire that included the questions intended to measure the initial commitment of the respondents. Consecutively, they all received the decision consequences. This is where the second manipulation took place. Half of the subjects were given success feedback and the other half failure feedback. While giving the consequences, care was taken not to present the subjects with too positive or too negative feedback. Following the decision consequences, the participants were informed that it was

time for the next board meeting where a decision was to be taken on whether to go on with the implementation of the discounting strategy They once again filled in the experimental questionnaire with questions to measure their commitment They were then told that they were to write a report to explain their point of view better and were asked to indicate the content of the information they would like to include in this report Finally, the participants answered questions designed to check the effectiveness of the manipulations and to gather demographic information on the subjects

The experiment took place in February 2006 with 143 HBO students at Nijmegen School of Management Ten subjects who did not fully fill in the questionnaire were excluded from the analysis The experiment was part of a methodology course and participation was on a voluntary basis The full text of the experimental questionnaire, manipulation, and the dependent variables can be seen in appendix III

5.1.2 Independent variables: Experimental manipulations

The experiment had a 2 X 2 design with the manipulations of commitment (committed vs not-committed) and of the decision consequences (positive vs negative) The conceptual model tested in this experiment is given in figure 5 1

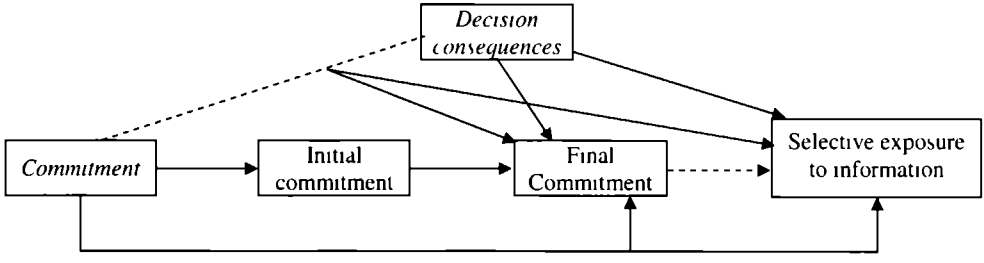


Figure 5.1: Conceptual model tested in the experiment The manipulations are given in italics

Manipulation of commitment: All the subjects were first informed that there have recently been difficulties in the business and the board of directors, of which the subjects were a member, was to decide on a new strategy to be implemented in the upcoming challenging times Following this information, the subject population was randomly assigned to one of

the two experimental groups: committed and not-committed to the strategy. The committed subjects were told that they, themselves, proposed the so-called discounting strategy:

> "One of the strategies you proposed is something you proposed so many times in the past: discounting. Every time there have been similar problems, you promoted that the prices should be lowered to be able to cope with the competition and not to lose the customers to the competitors. However, a senior board member always fiercely opposed the idea, advocated the shortcomings of the strategy, and pointed out that the implementation of this strategy would lead to the downfall of the company. To your dislike, he has been successful and this strategy never got implemented. However, now, the situation seems to be different. At every board meeting, the discounting idea comes up and the number of supporters seems to be increasing."

The participants were then told,

> "As usual, you strongly favor the idea and argue why it is a very good strategy".

The description listed the advantages as being pointed out by the subject to the board and finally read,

> "After long discussions, the majority of the board of directors voted, in agreement with your efforts and advice, in favor of your discounting strategy and hence, the decision was taken to start the implementation as of next month. The board decided to allocate a total of 1 million euros for the implementation of the strategy (commercials, promotions, subsidizing the price discounts etc.) in the coming 6 months. It was also decided that in 6 months time, the performance of the discounting strategy will be evaluated and the board will then decide whether the strategy will be continued with a further allocation of 1 million euros".

The not-committed subjects, on the other hand, were told that another board member proposed the discounting strategy. They were informed that they had fiercely opposed this strategy and advocated its shortcomings many times in the past when it was proposed and had always been successful in not getting it implemented. However, now, the situation was different and the board was favoring the idea. The participants were told,

> "As usual, you strongly oppose the idea and argue why it is not a good strategy".

The description listed the perils the strategy could cause (such as the downfall of the company) as being pointed out by the subject to the board and finally, read,

> After long discussions, the majority of the board of directors voted, contrary to your efforts and advice, in favor of the discounting strategy and hence, the decision was taken to start the implementation as of next month The board decided to allocate a total of 1 million euros for the implementation of the strategy (commercials promotions subsidizing the price discounts etc) in the coming 6 months It was also decided that in 6 months time, the performance of the discounting strategy will be evaluated and the board will then decide whether the strategy will be continued with a further allocation of 1 million Euros

At the end of the description, the committed subjects were asked to write a paragraph explaining why they thought the discounting was a good strategy whereas the not-committed subjects were asked to write a paragraph explaining why they thought the discounting was not a good strategy

Manipulation of decision consequences: Half of the subjects received positive decision consequences whereas the other half received negative consequences The success feedback informed the subjects that the discounting strategy worked very well, that the old customers were now satisfied with the quality and price levels, and that by decreasing the prices, a larger segment was reached They were also told that the resulting price war did not affect the business badly The overall result was summarized as,

> 'Even though you decreased prices the sales earnings increased due to the increase in the number of customers"

The failure feedback informed the subjects that during the first month of the implementation, the strategy worked but later on, the competitors responded to the decrease in price starting a furious price war Moreover, the problems with the producers (will to reduce costs caused difficult negotiations) and with introducing new products (less willingness of customers to pay for new, higher-priced products) were highlighted The overall conclusion was,

> "The expected customer increase in customer numbers did not take place This coupled with lower prices there was a decline in the sales earnings"

5.1.3 Dependent variables

As in the previous experiments, there were two dependent variables in this experiment First, commitment was measured to identify whether the subjects escalated in their commitment Second, information preference was measured to see whether selective exposure to information took place

Measurement of commitment: Behavioral and attitudinal commitments were measured in the same way as in experiment two of chapter 4 To measure behavioral commitment, the subjects were asked to indicate the amount of money they would like to invest in the discounting strategy To measure the attitudinal commitment, they were asked to answer five questions on their felt-commitment to the strategy The statements were "I will stick to the discounting strategy", "I do not feel any loyalty to the discounting strategy", "I am committed to the discounting strategy", "I feel obligated to invest in the discounting strategy", and "I feel attached to the discounting strategy" The subjects were asked to indicate the extent to which they agree with each of them using a seven-point Likert-type response format (1 strongly disagree, 7 strongly agree) To be able to investigate the change in commitment, both commitment levels were measured twice, once before and once after receiving the decision consequences

Measurement for information preference: confirmation bias: Information preference was measured in the same way as in the previous two experiments Following the measurement of final commitment, the subjects were told that in order to facilitate discussions in the next board meeting and explain their point of view better, they would like to write a report to present to the board members during the meeting They were told that they identified seven categories on which they would like to report on and that they asked a consulting company to collect the information for them They were then asked to indicate the content of the information, per category, they would prefer to include in their report Table 5 1 gives the explanation and the contents of each information category The dependent variable was the percentage of people choosing the confirming information per category and the total number of confirming items chosen per subject

The way the question was posed to the subjects was different from the previous two experiments Whereas in experiments one and two of chapter 4, the subjects were asked to indicate the type of information they would like to collect, in experiment three, they were asked for the type of information they would like to report on Another difference was that the content of the information items was better explained in the questions The style of the questions was as follows (here, only one example is given, the rest of the information categories can be seen in appendix III)

> **Information category 1:** This category contains information on the *predicted future performance* of the discounting strategy in case the strategy is continued
>
> Which of the following information items would you like to include in your report? Please indicate your choice by circling the letter corresponding to the item of your choice
>
> a) An estimation of the likelihood that the further implementation of the discounting strategy will bring *success* (i e increase in customer numbers and sustained high quality) to the company and the reasons for this possible success
> b) An estimation of the likelihood that the further implementation of the discounting strategy will bring *failure* (i e decrease in customer numbers and lower quality) to the company and the reasons for this possible failure

5.1.4 Other questions and the post-experimental questionnaire

After both investment decisions, the confidence of the respondents in the strategy as well as the responsibility they felt for the choice and results of the strategy and for the idea behind the strategy were measured At the end of the experiment, a post-experimental questionnaire was administered with manipulation check and demographic questions The manipulation check for commitment was done through three questions i 'to what extent do you feel that you supported the discounting strategy at the beginning of the 6 months period" (1 = *I did not support it at all, 7 = I supported it to a large extent*) ii 'whose idea was the discounting strategy initially?" (a it was *my* idea as a member of the board, b it was the idea of *someone else in the board of directors*) iii 'To what extent did you agree with the discounting strategy at the beginning of the 6 months period" (1 = I did not agree with it at all, 7 = I agreed with it completely) The manipulation check for performance was done by asking 'How did you perceive the performance of the discounting strategy?" (1 = *very negative*, 7 = *very positive*) For all these questions, a seven-point Likert-type response format was used

Table 5.1: Information categories for the experiment (the confirming items are shown in bold in the last column).

Information type		Explanation	The content of the reports
Predicted future performance		Information on the predicted future performance in case the strategy is continued.	**Likelihood of future success**
			Likelihood of future failure
Factors that contributed to the performance of strategy	Locus of causality*	Information on whether the causes of the performance of the strategy were internal or external.	Internal: intrinsic to the strategy (e.g. the way the strategy is implemented, the appropriateness of the strategy) and under the control of the decision-maker.
			External: extrinsic to the strategy (e.g. the economic developments, market structure) and out of the control of the decision-maker.
	Stability of causes*	Information on whether the causes of the setback were temporary or permanent.	Permanent and are likely to occur again in the future.
			Temporary and not likely to occur again in the future
Alternative strategies		Whether the alternative strategies are better or worse than the implemented strategy and the reasons for this.	**Current strategy has advantages over alternative strategies.**
			Alternative strategies have advantages over the current strategy
Anecdotal information on similar companies		Information on the performance of similar companies that implemented the same strategy.	**Strategy brought success to the company**
			Strategy brought failure to the company
Perceived correctness of the reported performance	Detailed information on the actual performance	Information on whether the reported performance was accurate.	**Actual performance is much better than it was reported**
			Actual performance is much worse than it was reported
			Actual performance is correctly reflected in the report.
	Evaluation criteria for judging the performance	Information on whether the criteria used for evaluating the strategy were correct.	Criteria were correctly set.
			Criteria were incorrectly set: Reported performance seems better than it really is.
			Criteria were incorrectly set: Reported performance seems worse than it really is.
Costs associated with implementing the strategy	Relative amount of sunk vs. future costs	Information on what proportion of costs necessary for success has already been implemented.	**70-80% already spent**
			30-40% already spent
	Absolute amount of sunk and future costs	Information on the costs associated with implementing the strategy	**Sunk costs**
			Future costs

*The confirming items in these categories refer to the confirming item under negative consequences. Under positive consequences, the confirming item would be internal causes and permanent causes for locus and stability of causes, respectively.

5.2 Results

5.2.1 Manipulation checks

To evaluate the effectiveness of the commitment manipulation, the responses of the subjects to the three manipulation check questions were analyzed. Comparisons of the means showed that as compared to the not-committed group, subjects in the committed group indicated higher initial support for the strategy ($Mean_{Committed}$ = 5 58 and $Mean_{Not\ committed}$ = 2 42, t(131) = -14 147, $p < 0\ 001$), felt that they chose the strategy ($Mean_{Committed}$ = 73% and $Mean_{Not\ committed}$ = 4%, t(131) = -11 346, $p < 0\ 001$), and indicated higher agreement with the strategy ($Mean_{Committed}$ = 5 67 and $Mean_{Not\ committed}$ = 2.30, t (131) = -15 755, $p < 0\ 001$)

Decision consequences manipulation was also successful ANOVA performed on the manipulation check question on consequences (see table 5 2 for the averages) returned main effects for both the decision consequences (F(1, 129) = 60 846, $p < 0\ 001$) and the commitment (F(1, 129) = 34 835, $p < 0\ 001$) manipulations Subjects in the positive consequences condition indicated that they found the results of the strategy more positive than the subjects in the negative consequences condition (means 5 102 vs 3 363) At the same time, however, the committed subjects indicated that they perceived the results of the strategy more positive than the not-committed subjects (means 4 891 vs 3 574) Being committed, people's perception was biased This is a first indication of the effect of initial commitment on biasing an objective information item

Table 5.2: Averages for the perception of performance

Perceived performance of the strategy (scale 1-7)		Decision consequences	
		Negative	Positive
Commitment	Not-committed	2 694	4 455
	Committed	4 031	5 750

A preliminary analysis showed that at the beginning, subjects in the committed group felt more confidence in the strategy and felt more responsibility for the choice and the results of the strategy and for the idea behind the strategy After receiving the decision consequences, initial commitment as well as the performance of the strategy had effect on the confidence and responsibility feelings of the respondents Finally, the reliability of five items to measure

the attitudinal commitment was 0 91 (Cronbach's Alpha) The factor analysis run on the same items also indicated that all the items loaded on a single factor The factor loadings are given in table 5 3

Table 5.3: Factor analysis results for the commitment measure

Items in the commitment measure	Factor loadings
I will stick to the discounting strategy	0 916
I do not feel any loyalty to the discounting strategy	0 849
I am committed to the discounting strategy	0 939
I feel obligated to invest in the discounting strategy	0 717
I feel attached to the discounting strategy	0 856

5.2.2 Analysis for commitment and escalation of commitment

Analyses were performed for the initial commitment, final commitment, and the difference between initial and final commitment levels

The initial commitment was measured right after the subjects were informed of their role in the company, but before receiving the decision consequences They were asked to indicate how much of the available funds they would like to invest in the strategy and to answer five questions to measure their behavioral and attitudinal commitment levels, respectively Given the commitment manipulation, the expectation was a difference in the commitment levels between the two experimental groups The results were consistent with the expectations

For behavioral commitment, the not-committed group indicated an average investment of 371,323 whereas the committed group indicated an average investment of 786,718 ($t(130) = -7\,606$, $p < 0\,001$)

For attitudinal commitment, the not-committed group indicated an average commitment of 2 922 whereas the committed group indicated an average commitment of 5 175 ($t(131) = 10\,985$, $p < 0\,001$)

These differences indicate that both at the behavioral and the attitudinal levels, the manipulation caused a higher initial commitment for the committed group

Analysis for escalation of commitment was done in two ways First, as in past research, the final commitment level was analyzed Second, for the change in commitment, the final

commitment level was analyzed while controlling for the initial commitment and the difference between the initial and the final commitment levels was analyzed

First, to investigate whether escalation took place, analysis on *final commitment* was performed Consistent with the prior work on escalation, significant differences existed between the groups (see table 5 3 for the averages)

ANOVA for behavioral commitment run on the amount of money invested indicated significant main effects for the commitment ($F(1, 129) = 32\ 928$, $p < 0\ 001$) and the decision consequences ($F(1, 129) = 5\ 547$, $p < 0\ 05$) manipulations Commitment manipulation led to a higher investment and at the same time, subjects receiving positive consequences invested more than those receiving negative consequences In the first experimental work on escalation, Staw (1976) had shown that committed subjects receiving negative consequences invested more than committed subjects receiving positive consequences The results, here, did not replicate this finding This is in line with prior research that also failed to replicate it (Schwenk, 1988) However, even though in the not-committed group, subjects receiving positive and negative consequences differed significantly from one another ($p < 0\ 05$), such a significant difference did not exist in the committed group (see table 5 4) That is, within the committed group, even though subjects receiving negative consequences invested less than those receiving positive consequences, this difference was not significant ($p = 0\ 339$) What is more interesting is that the average investment of the committed subjects receiving negative consequences was more than the average investment of the not-committed subjects receiving positive consequences This result, though not as strong as Staw's (1976), shows the existence of the escalation bias

ANOVA for attitudinal commitment showed similar results There were significant main effects for the commitment ($F(1, 129) = 50\ 069$, $p < 0\ 001$) and the decision consequences ($F(1, 129) = 8\ 724$, $p < 0\ 005$) manipulations (table 5 3) The subjects in the committed group felt more commitment than the subjects in the not-committed group The subjects receiving positive consequences felt more commitment than the subjects receiving negative consequences As with money invested, even though not-committed subjects receiving negative consequences felt significantly less committed than not-committed subjects receiving positive consequences, consequences did not make a significant difference for the final felt-commitment levels of the committed subjects

These results indicate that initial commitment coupled with negative consequences leads to escalation of commitment

Table 5.4: Averages for the final commitment levels. Standard deviations are given in parentheses.

Final commitment		Behavioral commitment (range: 0–1 million)		Attitudinal commitment (range: 1–7)	
		Decision consequences			
		Negative	Positive	Negative	Positive
Commitment	Not-committed	255,833[1,3] (54,718)	450,909[1,2] (57,151)	2.928[4,5] (0.226)	3.836[4,6] (0.236)
	Committed	643,750[3] (58,037)	717,187[2] (58,037)	4.806[5] (0.240)	5.287[6] (0.240)

[1] significant difference from one another at 5%, t(67) = 2 321; [2] significant difference from one another at 0 1%, t(63) = 3.367; [3] significant difference from one another at 0.1%, t(66) = 4.736, [4] significant difference from one another at 5%, t(67) = 2.546, [5] significant difference from one another at 0 1%, t(66) = 5.660; [6] significant difference from one another at 0 1%, t(63) = 4 354

Additional analysis was done to see how commitment changed after the receipt of the negative decision consequences. First, final commitment was analyzed while controlling for the initial commitment. Second, the difference between the two commitment levels was analyzed. Both analyses gave the same result regarding escalation.

ANOVA for the *final commitment while controlling for the initial commitment* (see table 5.5 for the averages) for the amount of money invested returned a significant main effect for the decision consequences manipulation ($F(1, 127) = 12.561$, $p < 0.005$), a marginally significant main effect for the commitment manipulation ($F(1, 127) = 3.008$, $p < 0.1$), and a significant effect for the initial money invested ($F(1, 127) = 46.579$, $p < 0.001$). For felt-commitment, there was a significant main effect for the decision consequences manipulation ($F(1,128) = 15.980$, $p < 0.001$), a marginally significant interaction effect ($F(1, 128) = 3.403$, $p < 0.1$), and a significant effect for initial felt-commitment ($F(1, 128) = 53.573$, $p < 0.001$). The interaction effect means that for positive consequences, the not-committed indicated a higher felt-commitment whereas for negative consequences, the committed indicated a higher felt-commitment.

Table 5.5: Averages for the final commitment levels while controlling for the initial commitment Standard deviations are given in parentheses

Final commitment while controlling for the initial commitment		Behavioral commitment (range 0–1 million)		Attitudinal commitment (range 1–7)	
		Decision consequences			
		Negative	Positive	Negative	Positive
Commitment	Not-committed	357,449[1] (49,461)	566,380[1] (52,884)	3 482[2] (0 205)	4 644[2] (0 227)
	Committed	493,040[1] (54,685)	636,573[1] (51,403)	4 105[2] (0 223)	4 532[2] (0 227)

[1] Evaluated at covariates appeared in the model initial money invested = 572 727
[2] Evaluated at covariates appeared in the model initial felt commitment = 4 006

Further analysis was done on the difference between the initial and final commitment levels (see table 5 6 and figure 5 2) The results for behavioral and attitudinal commitment measures differed from one another For difference in money invested, ANOVA showed a significant main effect only for the decision consequences manipulation ($F(1, 128) = 14\ 794$, $p < 0\ 001$) Summed over the commitment conditions, positive consequences led to an increase in money invested whereas negative consequences led to a decrease Contrary to the expectations, the highest decline was in the committed group that received the negative consequences Overall, change in money invested was affected only by the decision consequences and the committed subjects did not show escalating behavior

On the other hand, for difference in felt-commitment, ANOVA showed significant main effects for both the commitment ($F(1, 129) = 7\ 929$, $p < 0\ 01$) and the decision consequences ($F(1, 129) = 16\ 243$, $p < 0\ 001$) manipulations as well as a significant interaction effect ($F(1, 129) = 4\ 727$, $p < 0\ 05$) Upon receiving positive consequences, all the subjects increased their commitment The not-committed increased more than the committed ($p < 0\ 1$) and the increase in the committed condition was almost zero Upon receiving negative consequences, all the subjects decreased their commitment Contrary to the expectations, the average decrease in the committed group was more than the not-committed even though the difference was not significant

Table 5.6: Average differences in the behavioral and attitudinal commitment levels. Standard deviations are given in parentheses.

Difference between the initial and final commitments		Behavioral commitment (range: 0–1 million)		Attitudinal commitment (range: 1–7)	
		Decision consequences			
		Negative	Positive	Negative	Positive
Commitment	Not-committed	-128,889[1] (52,844)	93,125[1] (56,049)	-0.189[3] (0.204)	1.127[4] (0.213)
	Committed	-207,812[2] (56,049)	-4,687[2] (56,049)	-0.325 (0.216)	0.068[4] (0.216)

[1] significant difference from one another at 0.1%, t(67) = 4.663; [2] significant difference from one another at 1%, t(62) = 2.735; [3] significant difference from one another at 1%, t(66) = 2.730; [4] significant difference from one another at 0.1%, t(63) = 3.585

Overall, upon receiving negative consequences, even though the committed subjects decrease their commitment more than the not-committed subjects, their final commitment is significantly higher (both behavioral and attitudinal). In the same way, upon receiving positive consequences, even though the committed increase their commitment much less than the not-committed subjects, their final commitment level remains higher[15]. The change in commitment levels and the final commitment levels can be seen in figures 5.2a (behavioral) and 5.2 b (attitudinal).

[15] An additional analysis was performed for the difference measures in order to see whether the initial commitment level affects the change in commitment. ANOVA for the difference in investment while controlling for the initial investment returned a significant main effect for the consequences manipulation ($F(1, 127) = 12.561$, $p < 0.005$), a marginally significant effect for the commitment manipulation ($F(1, 127) = 3.008$, $p < 0.1$), and a significant effect for initial money invested ($F(1, 127) = 33.666$, $p < 0.001$). ANOVA for the difference in felt-commitment while controlling for the initial commitment returned a significant main effect for consequences manipulation ($F(1, 128) = 15.980$, $p < 0.001$), a marginally significant interaction effect ($F(1, 128) = 3.403$, $p < 0.1$), and a significant effect for initial felt-commitment ($F(1, 128) = 19.607$, $p < 0.01$). The changes in commitment levels concur with the expected changes from an escalation situation. The committed decision-makers decrease their commitment much less than the not-committed upon receiving negative consequences

Change in commitment controlling for the initial commitment	Behavioral commitment		Attitudinal commitment	
	Negative	Positive	Negative	Positive
Not-committed	-215.278[i] (49.461)	-6.347[i] (52.884)	-0.524[ii] (0.205)	0.638[ii] (0.227)
Committed	-79.686[i] (54.685)	63.846[i] (51.403)	0.099[ii] (0.223)	0.526[ii] (0.227)

[i] Evaluated at covariate initial investment = 572.727 [ii]Evaluated at covariate initial felt-commitment = 4.006

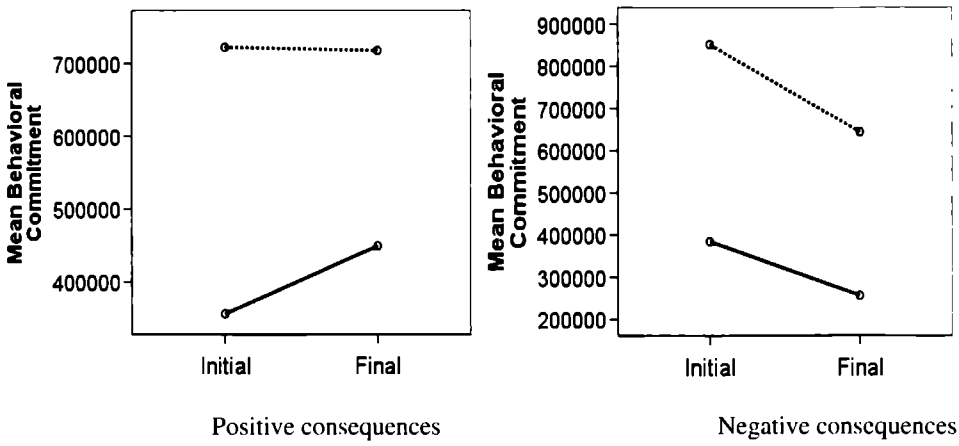


Figure 5.2a: Change in behavioral commitment level. Dotted (solid) line represents the committed (not-committed) group.

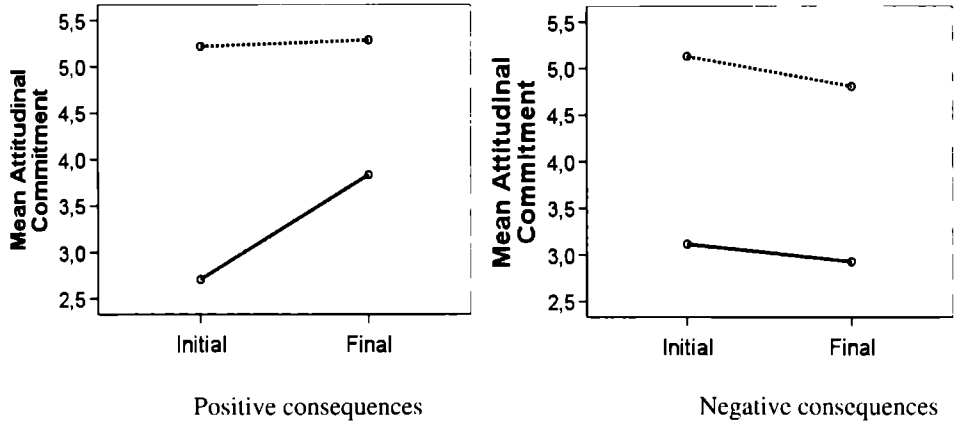


Figure 5.2b: Change in attitudinal commitment levels. Dotted (solid) line represents the committed (not-committed) group.

Finally, in order to test the conceptual model for this experiment, a *path regression* analysis was performed. Commitment manipulation was regressed on the initial commitment level while commitment and decision consequences manipulations, their interaction, and the initial commitment level were regressed on the final commitment level. The results are shown in figures 5.3a (for behavioral commitment) and 5.3b (for attitudinal commitment).

For money invested ($AdjR^2 = 0.298$, $F(1, 130) = 56.660$, $p < 0.001$ and $AdjR^2 = 0.426$, $F(4, 127) = 25.345$, $p < 0.001$), the commitment manipulation had a significant effect on the

initial investment level ($t = 7.527$, $p < 0.001$). The final investment level was determined by the initial investment level ($t = 6.825$, $p < 0.001$) and the decision consequences manipulation ($t = -3.544$, $p < 0.005$). The commitment manipulation had a marginal effect ($t = 1.734$, $p < 0.1$).

For felt-commitment ($AdjR^2 = 0.475$, $F(1, 131) = 120.664$, $p < 0.001$ and $AdjR^2 = 0.507$, $F(4, 128) = 34.882$, $p < 0.001$), the commitment manipulation had a significant main effect on the initial felt-commitment level ($t = 10.985$, $p < 0.001$). The final felt-commitment level was determined by the initial felt-commitment level ($t = 7.319$, $p < 0.001$) and the decision consequences manipulation ($t = -3.998$, $p < 0.001$). The interaction of commitment and consequences manipulations had a marginal effect ($t = 1.845$, $p < 0.1$).

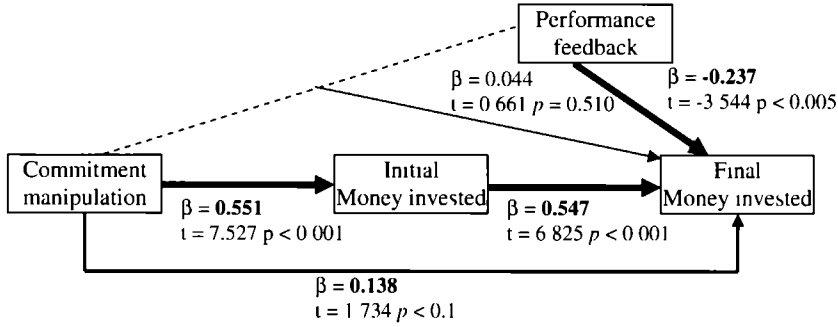


Figure 5.3a: Results for path regression for the conceptual model: behavioral commitment.

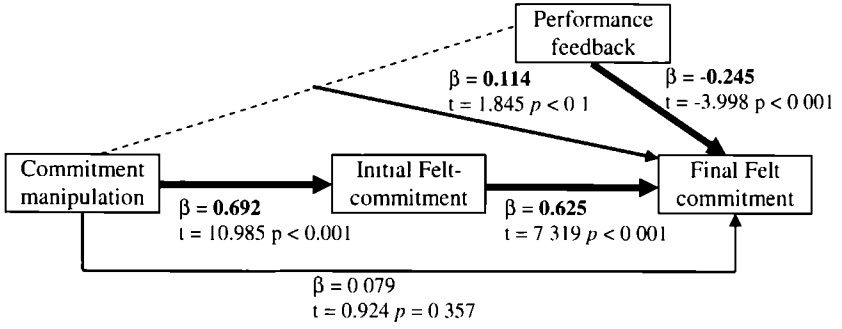


Figure 5.3b: Results for path regression for the conceptual model: attitudinal commitment.

Summary for commitment: In this experiment, initial commitment was manipulated and its effect on escalation was studied. Two types of commitment were measured: behavioral and

attitudinal. The final commitment levels were as expected: i. The subjects in the committed group invested more and felt more commitment than those in the not-committed group and ii. the subjects receiving positive decision consequences invested more and felt more commitment than those receiving negative consequences. These findings support the existence of the escalation bias. Further support came from the committed condition. The nature of the consequences did not have any effect on the final commitment level of those in the committed condition. Those receiving negative consequences did not invest significantly less than those receiving positive consequences. The same results were seen for attitudinal commitment as well.

Looking at the commitments at two different points in time and analyzing the difference, the behavior patterns did not match with what would be expected from an escalation prototype. Upon receiving positive consequences, the not-committed increased their commitment more than the committed whereas upon receiving negative consequences, the committed decreased their commitment more than the not-committed. These seem to constitute rational behavior patterns.

5.2.3 Analysis for information preference under escalating commitment

The hypotheses in chapter 3 stated the expectation regarding the effect of initial commitment on information preference. In hypotheses set *c*, it was indicated that people initially committed to a strategy are expected to selectively search for confirming information.

In this experiment, after the subjects identified their final commitment level they were asked to indicate the information they would prefer to include in a report they would write to the board to explain their viewpoint. They were provided with seven information categories. Table 5.1 includes all the information categories and specific information items per category.

Analysis was similar to that of chapter 4. Two dependent variables were created. First, the percentage of people choosing for option a[16] in each information category was calculated and

[16] Dependent variable was chosen as the percentage choosing option *a* rather than percentage choosing the confirming information due to the manipulation of the decision consequences For some of the information categories, confirming information differs depending on the nature of the consequences For instance, for the

each category was analyzed separately Second, the total number of confirming information items chosen by each subject was calculated Three analyses were performed

1) Within each experimental group, the percentage of people choosing option *a* was compared to the percentage of people choosing option *b* The purpose was to see whether in any of the groups there was a preference for confirming information
2) ANOVA was performed for each information item to check for the effect of the experimental manipulations
3) The correlations between the final commitment levels and the choice for confirming information was calculated in order to see whether commitment level was associated with choosing confirming information

Below, the results will be given per information category Table 5 7 includes results on the percentage of people per experimental group choosing for option a or b and the significance level that indicates whether significantly more people chose for either of the options

For the item *predicted future performance*, looking at the percentages of people choosing for the success information showed that significantly more subjects in the committed group preferred the success information No pattern was seen for the subjects in the not-committed condition ANOVA run on the percentage of subjects choosing for an estimate of future success gave a significant main effect for the commitment manipulation ($F(1, 129) = 19\ 351$, $p < 0\ 001$) 75% of the committed subjects preferred to report future success as opposed to 39% of the not-committed subjects This gives support to hypothesis 1c that initial commitment leads to preference for information that indicates that the strategy will be successful in the future Correlation analysis also gave support for the hypothesis Final commitment levels and percentage choosing for success information were highly correlated indicating that the higher the commitment to the strategy was the higher was the will to use information that confirms the strategy (behavior commitment Pearson = 0 464, $p < 0\ 001$ and attitudinal commitment Pearson = 0 442, $p < 0\ 001$) Given these results, there is support for hypothesis 1c

For the item *locus of causality*, none of the analyses gave significant results Even though the percentage of subjects preferring internal causes was slightly more than those preferring external causes, these differences were not significant ANOVA did not return any

category locus of causality positive consequences would lead to internal causes to be seen as confirming information whereas negative consequences would make the external causes confirming information

significant effects for either of the manipulations The final commitment levels and the percentage choosing for external causes were not correlated. Given the results, hypothesis 2c is rejected

For the item *stability of the causes of failure*, the majority of the subjects in the 'committed – positive feedback' and the 'not-committed – negative feedback' groups preferred to hear that the causes were permanent No pattern was detected in the other two groups ANOVA on percentage of people choosing for the permanent causes gave consistent results a significant interaction effect ($F(1, 129) = 12\,487$, $p < 0\,005$) Correlation analysis showed that there was a negative correlation between the final behavioral commitment level and preference for the information on permanent causes (Pearson = -0 183, $p < 0\,05$) This means that the more money people invested the *less* they wanted to hear that the causes were permanent Given these results, hypothesis 3c is rejected

For the information category *alternative strategies*, the majority of the subjects in the committed groups (68%) wanted to report that the alternative strategies were worse than the current strategy whereas majority of subjects in the not-committed groups (82%) prefer to report that the alternative strategies are better than the current strategy ANOVA performed on percentage of people who wanted to report that the current strategy is better than the alternative strategies returned a significant main effect for the commitment manipulation ($F(1, 129) = 47{,}718$, $p < 0\,001$) Correlation analysis also returned highly significant correlations between final commitment levels and percentage preferring to report that the current strategy is better (behavioral commitment Pearson = 0 430, $p < 0\,001$ and attitudinal commitment Pearson = 0 591, $p < 0\,001$) The higher the commitment was, the higher was the percentage of people choosing for information confirming the goodness of the implemented strategy Given these results, there is support for hypothesis 4c

For the information category *anecdotal information*, the majority of the subjects in the committed group wanted to report success stories whereas the majority in not-committed groups preferred failure stories ANOVA run on the percentage of people who chose for success stories returned a significant main effect for the commitment manipulation ($F(1, 129) = 27\,774$, $p < 0\,001$) Correlation analysis also returned highly significant correlations between the final commitment levels and the percentage choosing for confirming information (behavioral commitment Pearson = 0 355, $p < 0\,001$ and attitudinal commitment Pearson = 0 450, $p < 0\,001$) Given these results, there is support for hypothesis 5c

Table 5.7: Information preferences per experimental group Confirming information (for the committed-negative consequences group) is given in bold

n	Initial Commitment	Performance	**Predicted future performance**		**Locus of causality**		**Stability of causes**		**Alternative strategies are**		**Anecdotal information**	
			Success	Failure	Internal	**External**	Permanent	**Temporary**	**Worse**	Better	**Success**	Failure
32	Committed	Positive	**0.75****	0 25	0 63	0 37	**0.75****	0 25	**0.72***	0 28	0 63	0 37
32	Committed	Negative	**0.75****	0 25	0 53	0 47	0 44	0 56	**0.66**†	0 34	**0.84*****	0 16
33	Not-committed	Positive	0 39	0 61	0 52	0 48	0 52	0 48	0 21	**0.79*****	0 30	**0.70***
36	Not-committed	Negative	0 39	0 61	0 53	0 47	**0.78*****	0 22	0 14	**0.86*****	0 33	0 67*
			Initially committed people preferred success information whereas the initially not-committed preferred failure information Decision consequences did not make a difference		No general pattern was observed		Subjects in the 'committed – positive feedback' and 'not-committed – negative feedback' groups preferred permanent causes The rest was indifferent		Initially committed people preferred to hear that the alternatives were worse than the discounting strategy whereas the initially not-committed preferred to hear that the alternatives were better		Initially committed groups wanted to hear ***success*** stories and the not-committed groups wanted to hear ***failure*** stories	

$^{\dagger}p < 0\ 10$, $^{*}p < 0\ 05$, $^{**}p < 0\ 005$, $^{***}p < 0\ 001$

Table 5.7 (continued): Information preferences per experimental group.

n	Initial Commitment	Performance	**Perceived correctness of the reported performance**						**Costs associated with implementing the strategy**			
			The reported performance is			Criteria used for judging the performance is			Proportion sunk/future costs		Sunk costs vs. future costs	
			Worse than the actual	Better than the actual	Accurate	Correct	Incorrect: actual performance is better	Incorrect: actual performance is worse	70-80% is already invested	30-40% is already invested	Sunk	Future
32	Committed	Positive	0.26	0.06	0.68	0.78	0.19	0.03	0.50	0.50	0.22**	0.78
32	Committed	Negative	0.34	0.06	0.59	0.69	0.16	0.16	0.38	0.62	0.09***	0.91
33	Not-committed	Positive	0.12	0.36	0.52	0.58	0.39	0.03	0.67†	0.33	0.21***	0.79
36	Not-committed	Negative	0.08	0.42	0.50	0.61	0.25	0.14	0.67*	0.33	0.14***	0.86
			All groups prefer mostly accurate. However, the second preferred is for the committed people better than the report and for the noncommitted people worse than the report.			They all want to hear that the criteria are correct.					In each group, majority prefers information on ***future*** costs.	

$^{\dagger}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.005$, $^{***}p < 0.001$

For the information category *correctness of the reported performance*, two separate questions were asked For the first question, the subjects could choose amongst three options information indicating that the actual performance a) was correctly reflected in the reported performance, b) was better than the reported performance, c) was worse than the reported performance The majority of the subjects in all the experimental groups preferred to report that the reported performance was a correct reflection of the actual performance ($M_{committed}$ = 63% and $Mean_{Not\ committed}$ = 51%, p = 0.141) The second preferred option differed between the groups For the committed group, it was 'the actual performance is better than reported' ($M_{Committed}$ = 30% and $Mean_{Not\ committed}$ = 10%, $p < 0\ 005$) and for the not-committed group, it was 'the actual performance is worse than reported' ($M_{Committed}$ = 0 06% and $Mean_{Not\ committed}$ = 39%, $p < 0\ 001$) As a second question, the subjects were asked to judge the correctness of the criteria used to evaluate the performance They could choose amongst three options the criteria were a) correct b) incorrect such that the reported performance was better than the actual, c) incorrect such that the reported performance was worse than the actual The majority of the subjects in all the experimental groups preferred to report that the criteria used were correct ($M_{Committed}$ = 73% and $Mean_{Not\ committed}$ = 59%, $p < 0\ 1$) The second preferred option was "incorrect criteria the actual performance was better than reported" for both groups ($M_{Committed}$ = 17% and $Mean_{Not\ committed}$ = 32%, $p < 0\ 05$) The option "incorrect criteria the actual performance was worse than reported" was the least preferred at 9% in both groups Given these results, there is marginal support for hypothesis 6c Subjects seemed to doubt the correctness of the performance feedback rather than the evaluation criteria

Finally, for the information category *costs associated with implementing the strategy*, two questions were asked The first one was on the relative amount of sunk costs in proportion to the total costs necessary for achieving success The subjects could choose between reporting either that the 70–to–80% or 30–to–40% of the costs required for a successful implementation was already invested So whereas one option indicated that sunk costs were larger than the future costs and that the successful project completion was near (in monetary terms), the other indicated that the future costs were larger than the sunk costs and that still a lot had to be invested to reach success ANOVA performed on the percentage of people choosing the first option (sunk cost > future costs) gave a significant main effect for the commitment manipulation ($F(1, 129) = 7\ 289$, $p < 0\ 01$) Even though this significance was expected, it was in the opposite direction to what was hypothesized The not-committed subjects, rather than the committed, showed a higher preference for the '70-to-80% of the

cost invested' alternative ($M_{Not\ committed} = 67\%$ and $M_{Committed} = 44\%$) A closer look at the four experimental groups indicated that regardless of the decision consequences, the majority in the not-committed group (67%) chose for the low future cost information. In the committed group, however, no preference was observed Correlation analysis returned a significant negative correlation between final attitudinal commitment level and percentage choosing for high sunk cost information (Pearson = -0 177, $p < 0\ 05$) This means that *less* of the more committed subjects preferred to report that the required future costs were low For the second question in this category, the subjects could choose to report the amount of sunk costs or future costs ANOVA returned no significant results and there were no correlations between the final commitment levels and the preference in this category Looking at the individual experimental groups showed that all the subjects preferred to report future costs Given all these results, hypothesis 7c is rejected

The analysis for the *total number of confirming items requested* was done separately for the positive and negative decision consequences groups Both in the positive and negative consequences conditions, the commitment manipulation had a significant effect on the amount confirming items requested (out of a total of nine items positive consequences condition. $Mean_{Committed} = 6\ 58$ and $Mean_{Not\ committed} = 4\ 39$, $t(62) = -3\ 828$, $p < 0\ 001$, negative consequences condition $Mean_{Committed} = 4\ 69$ and $Mean_{Not\ committed} = 2\ 58$, $t(66) = -4\ 623$, $p < 0\ 001$) Calculating confirmation bias as the difference between the number of chosen confirming and disconfirming pieces of information (Fischer et al , 2005) indicates the existence of confirmation bias in the positive consequences condition ($Mean_{Committed} = 4\ 1613$ and $Mean_{Not\ committed} = -0\ 2121$, $t(62) = -3\ 828$, $p < 0\ 001$) and disconfirmation bias in the negative consequences condition ($Mean_{Committed} = 0\ 3750$ and $Mean_{Not\ committed} = -3\ 8333$, $t(66) = -4\ 623$, $p < 0\ 001$) Overall, given the fact that committed subjects showed more confirmation (or less disconfirmation) tendencies, there is support for hypothesis 8c

Finally, through path regression, the total conceptual model was tested In figures 5 4a (behavioral) and 5 4b (attitudinal), only the significant effects are shown The effects significant at 5% (10%) are shown in thick (thin) lines.

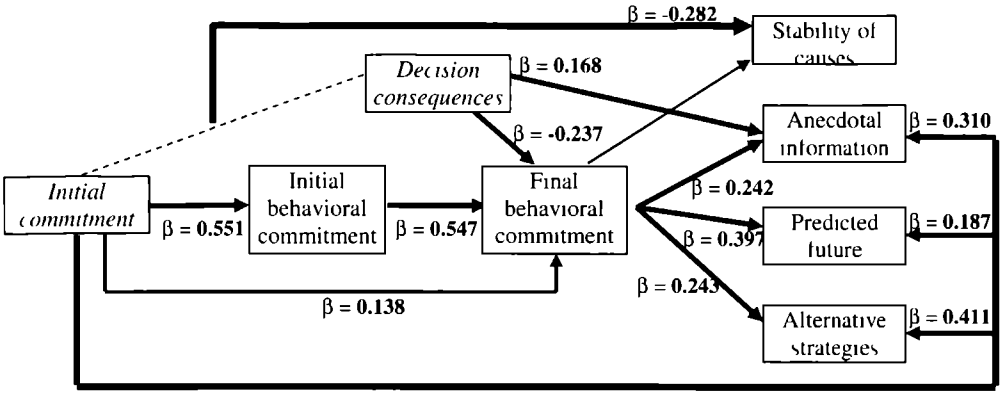


Figure 5.4a: Results for path regression for the conceptual model: behavioral commitment.

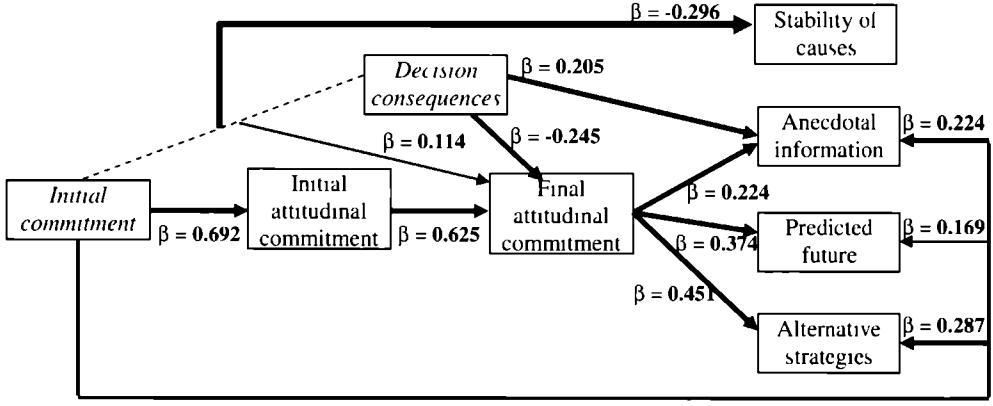


Figure 5.4b: Results for path regression for the conceptual model: attitudinal commitment.

Summary for information preference: Initially committed subjects preferred to report more confirming information than the not-committed subjects. The selective exposure tendencies mainly occurred in items related to the future performance. As compared to the not-committed group, subjects in the committed group preferred information that indicated high probability for future success (hypothesis 1c), information on the similar companies to whom the same strategy brought success (hypothesis 5c), information that indicates that their strategy is better than the alternative strategies (hypothesis 4c), and that the actual

performance is better than the reported (as a second preferred alternative, hypothesis 6c) Regarding the causes of failure (locus and stability) and the costs of implementation (sunk versus future costs), there was no bias in the type of information subjects prefer to hear and use in their own report

5.3 Conclusions and discussion

In this chapter, one experiment was reported Based on this experiment, hypotheses regarding the effect of initial commitment on selective exposure to information were tested The results from this experiment can be summarized in two different domains i commitment and escalation and ii information preference Each of these will be looked at in turn

Commitment and escalation: The results support the findings from the previous two experiments and previous escalation research After negative decision consequences, people who are initially committed to a strategy feel more committed and invest more money than people who are not initially committed In this experiment, escalation was also studied by analyzing the change in commitment, i e difference between the initial and final commitment levels This was done for both behavioral and attitudinal commitments There are a couple of interesting findings from this analysis

First, the change in the commitment levels was contrary to what was expected Given that the word escalation carries in itself a connotation of increase, the expectation was an increase or at least a smaller decrease in the commitment levels of the committed individuals in comparison to the not-committed The results from this study showed that the largest decrease in both behavioral and attitudinal commitment was in the committed group receiving negative consequences Another counter-intuitive result was that after receiving positive consequences the committed subjects practically did not change their commitment at all

Second, the final commitment levels were consistent with the existence of the escalation bias Upon receiving negative consequences, even though the committed subjects decreased their commitment more, their final commitment level was still significantly higher than that of the not-committed subjects In the same way, upon receiving positive consequences, even though

the committed increased their commitment much less than the not-committed subjects, their final commitment level remained higher than that of the not-committed One possible cause for this result is the limits set by the questionnaire The subjects in the committed group indicated high initial commitment As a result, when they received positive consequences and wanted to increase their commitment they did not have much degrees of freedom as compared to the subjects in the not-committed condition In the same way, when they received the negative consequences, as compared to the not-committed condition, subjects in the committed condition had much more room to move down the scale and decrease their commitment

Even though this could explain the results regarding the difference scores, it does not explain why the final commitment levels concur with the general escalation findings Upon receiving negative consequences, the committed subjects did not use the full degrees of freedom available to decrease their commitment and remained at a relatively high commitment level Similarly, the not-committed subjects, upon receiving positive consequences, did not use the full degrees of freedom to the higher end of the scale and remained at a relatively low commitment level This means that committed subjects remain conservative in decreasing their commitment upon receiving negative consequences whereas the not-committed subjects remain conservative in increasing their commitment upon receiving positive consequences This, in itself, indicates an irrational pattern of behavior Such behavior can be seen as being consistent with the well-known anchoring and adjustment heuristic People make estimates or form judgments by starting from a known initial value, called an anchor, and to determine the final value, they make adjustments to the anchor Often the adjustments are insufficient and the final estimates are biased towards the initial value (Slovic and Lichtenstein, 1971, Tversky and Kahneman, 1974, Beach and Connolly, 2005). Anchoring and adjustment is a robust phenomenon that has been observed in many domains (Whyte and Sebenius, 1997) Also in the current case, the respondents seem to take their initial commitment or investment level as an anchor and adjust it The adjustments are in the correct direction but are not sufficient Hence, initially-committed people end up with high final commitment even after negative consequences whereas initially not-committed people end up with low final commitment even in the face of positive consequences[17]

[17] One could question whether the reason for the observed situation is due to the regression to the mean (RTM) effect If RTM effect were to be taken into account and the movement up (for not-committed) and down (committed) the scale towards the mean due to RTM were to be eliminated then the decrease in the committed

The results from the analysis of the difference scores while controlling for the initial commitment level gives support for this reasoning The change in commitment is mainly determined by the level of the initial commitment and the decision consequences If the initial commitment is controlled for, the change in commitment levels follow the pattern expected from an escalation situation

Third, it is interesting to realize that, statistically, difference in money invested and difference in felt-commitment have different determinants Whereas the commitment manipulation does not have any effect on the change in behavioral commitment, it has a significant effect on the change in attitudinal commitment However, qualitatively, there is no major difference between the two measures Upon receiving negative consequences, both not-committed and committed subjects decrease money invested and felt-commitment and committed subjects decrease both commitment levels more than the not-committed Upon receiving positive consequences, on the other hand, the not-committed subjects increase both commitment levels Committed subjects, on the other hand, have very minor changes in both commitment levels that practically, there is no change in their commitment (money invested -4687 in a scale of 0 to 1 million and felt-commitment 0 068 in a scale of 1 to 7)

Overall, these results give support for the escalation claims Moreover, the result that an antecedent of dissonance arousal, namely initial commitment, leads to escalation gives further support for self-justification explanation of escalation

Selective exposure to information: The expectation that initial commitment, as an antecedent of dissonance arousal, would lead to selective exposure to information under escalation conditions was met The total number of confirming items requested was higher in the committed condition than in the non-committed and it was higher in the positive consequences condition than in the negative In terms of the number of confirming items requested, the amount was higher than in experiment two of chapter 4 On the average, the initially-committed subjects requested confirming information from 52% of all the items (4 69 out of 9 items) whereas the not-committed requested confirming information only from 29% of the items (2 58 out of 9 items) (In experiment two, these percentages were 37% (2 2

group and the increase in the not committed group would have been even smaller As a result the adjustments would have been even smaller and the gap between the committed and not committed would have been larger giving indication for the escalation bias as well as (more) insufficient adjustments to the initial commitment

out of 6 items) for the choice groups and 29% (1 67 out of 6 items) for the no-choice groups) These results gave support to the hypothesis that people who are initial committed to a strategy prefer to use more confirming information than people who are not initially committed

Consistent with experiment two, preference for confirming information mainly occurred in items related to the future performance As compared to the not-committed subjects, the committed subjects preferred information that indicated high probability for future success, that their strategy is better than the alternatives, that the same strategy brought success to similar companies, and that the actual performance is better than the reported (as a second preferred alternative) Regarding diagnostic information (i e information on the causes of failure) and the costs of implementation (absolute or proportional sunk-future costs), there was no bias in the type of information subjects prefer to hear and use in their own report It is possible that since diagnostic information is useful for future decisions, such dissonant information is not rejected (Festinger, 1964)

5.4 Summary

In this chapter, the results of an experiment testing the effects of initial commitment and decision consequences on escalation and selective exposure to information were discussed Initial commitment was shown to lead to escalation in commitment as well as selective exposure to information Different information categories were discussed and amongst these, the selective exposure tendencies were seen in categories related to the performance of the strategy For diagnostic and cost-related information, no such tendency was observed

In chapters 4 and 5, the existence of selective exposure under escalation conditions was shown In the next chapter, the focus will be on a tool that can help diminish these tendencies

Chapter 6

System dynamics as a de-escalation tool

As explained in chapter two, the main focus of past research on escalation of commitment has been on identifying the determinants of escalation by means of experimental research (see Staw and Ross, 1987) and showing the real life existence of escalation through cases study research (e g , Staw and Ross, 1986, Ross and Staw, 1993, Keil, 1995a, Drummond, 1996, Newman and Sabherwal, 1996) Even though the different causes of escalation of commitment are well understood, strategies for how people can avoid escalation did not receive much attention Yet, understanding how de-escalation can be achieved could be very useful in identifying policy recommendations (Simonson and Staw, 1992) Lately, researchers tried to understand de-escalation by examining cases in which de-escalation took place (E g , Keil, 1995b, Montealegre and Keil, 2000, Pan, 2005, Pan et al , 2006) However, prior research has not identified many effective or feasible solutions to the escalation problem

The focus of this research has so far been on the link between the escalation bias and selective exposure to information Based on experiments, it was shown that people who escalate in their commitment to a strategy have the tendency to use confirming information to support their re-allocation decision The confirmatory information search was mainly in the domains related to the (future) performance of the strategy but not in the use of diagnostic information such as the causes of failure Having pinpointed the problem in the previous chapters, this chapter will turn the attention to how escalation and selective exposure tendencies can be mitigated More specifically, the focus will be on System Dynamics (SD) modeling as a possible de-biasing method The hypothesis is that using an SD model representing the feedback structure of the problem situation will lead to de-escalation and less confirmation tendencies

This chapter is arranged as follows First, the past research findings on de-escalation will be summarized Second, hypotheses on the role of SD in reducing escalation of commitment and selective exposure tendencies will be presented Third, the experimental design and the

results will be described Finally, in the conclusions, the implications of the results will be discussed

6.1 Past research on De-escalation of commitment

De-escalation of commitment occurs when there is "reduced commitment to a failing course of action" (Montealegre and Keil, 2000) Based on previous research, Montealegre and Keil (2000 420) listed "various triggering activities and conditions that can promote de-escalation" In this dissertation, these factors will be grouped under headings i) situational factors, ii) objective information on the project and its progress, and iii) specific techniques or procedures Table 6 1 gives a summary of these three groups of factors

Situational factors are those that are related to the conditions within which escalation is occurring For instance, it has been shown that change in top management support or project leader (Keil 1995b, Ross and Staw 1993), external pressures on the organization (Keil 1995b, Ross and Staw 1993), stakeholder interest, and increased organizational tolerance for failure lead to de-escalation

Research findings also showed that highlighting certain values of project information to de-escalation For instance, providing decision-makers with alternative strategies (McCain, 1986, Northcraft and Neale, 1986), highlighting endogenous causes of failure (Staw and Ross, 1978), giving repeated, more frequent failure feedback (Staw and Fox, 1977, McCain, 1986, Garland et al , 1990, Keil and Robey, 1999), providing unambiguous negative feedback (Garland et al , 1990), setting explicit goals at the beginning of the project (Kernan and Lord, 1989), making the project costs visible (Brockner et al , 1979), and providing information on high efficacy of resources (Staw and Fox, 1977, Bateman, 1986) decrease investments This effect of information could be due to the concreteness of the given information For instance, decision-makers might not be able to ignore this information anymore and as a result, behavior change might become a more likely means of dissonance reduction

Table 6.1: Factors stimulating de-escalation.

Groups of factors stimulating de-escalation	Factors	Papers
Situational factors	Change in top management support or project leader	Keil, 1995b; Ross and Staw, 1993
	External pressures on the organization	Keil, 1995b; Ross and Staw 1993
	Stakeholder interest	
	Increased organizational tolerance for failure lead to de-escalation	
Objective information on the project and its progress	Availability of alternative strategies; opportunity costs	Staw and Ross, 1978; Boulding Morgan, and Staelin, 1997
	Repeated, more frequent negative performance feedback	Staw and Fox, 1977; McCain, 1986; Garland, Sandefur, and Rogers, 1990; Keil and Robey, 1999
	Unambiguous negative feedback	Garland et al., 1990
	Setting explicit goals at the beginning of the project	Kernan and Lord, 1989
	Visibility of project costs	Brockner, Shaw, and Rubin, 1979
	Information on high efficacy of resources	Staw and Fox, 1977; Bateman, 1986
Specific techniques or procedures	Thorough decision-making	Simonson and Staw, 1992
	Minimum goal setting	Simonson and Staw, 1992; Boulding et al., 1997; Keil and Robey, 1999
	Threat reduction	Simonson and Staw, 1992; Keil and Robey, 1999 (conflicting findings)
	Self-diagnosticity	Simonson and Staw, 1992
	Accountability for decision process	Simonson and Staw, 1992
	Accountability for decision outcome	Simonson and Staw, 1992; Keil and Robey, 1999 (conflicting findings)
	Highlighting environmental uncertainty & possible negative outcomes prior to the initial investment decision	Boulding et al., 1997
	Pre-commitment to a predetermined stopping rule	Boulding et al., 1997
	Sequential decision de-coupling	Boulding et al., 1997; Keil and Robey, 1999
	Devil's advocacy	Schwenk, 1988
	Setting clear criteria for success and failure	Keil and Robey, 1999

Even though these findings are interesting, there are problems with using them as general policies For instance, it might be difficult to generalize the situational factors to apply to a wide range of situations It may not always be possible to fire the project leader or generate external pressures on the organization The research on providing decision-makers with objective information on the project and its progress is more informative because it generates insight into how different values of information affect escalation decision But providing decision-makers with a list of objective information is not enough As Boulding et al (1997 166) stated "unfortunately, simply providing information may not be sufficient to overcome forces that bias managers in favor of a losing course of action Instead, like other people, managers may ignore or distort this information" Individuals are not good information processors and resort to various biases and heuristics to simplify their environment It is interesting that while studying the effects of information on escalation, a single "objective" information item was presented to the subjects rather then letting the subjects make an effort to collect, and hence choose, information For example, in the experiment on internal vs external causes of failure (Staw and Ross, 1978), the subjects were presented with either internal causes or external causes, but not both at the same time In reality, however, decision-makers would be confronted with both types of information simultaneously and would have to choose which one to pay attention to Given confirmation tendencies, the decision-makers can disregard or bias the disconfirming information Chapters 4 and 5 of this dissertation as well as some cases on escalation (e g Staw and Ross, 1986) give evidence to such avoidance of disconfirming information

De-escalation techniques should go further than just giving the decision-makers the readily available information The techniques should aim at making the decision-makers actively and purposefully identify the information items that can generate de-escalation Only that way the negative consequences of biases can be reduced

The third group of de-escalation research focuses on developing de-escalation techniques but such research has been scarce And unfortunately, many of the identified techniques do not focus on eliminating the underlying causes of escalation

Simonson and Staw (1992) were the first ones to develop and compare different procedures for de-escalation They proposed 6 different techniques (thorough decision-making, minimum goal setting, threat reduction, self-diagnosticity, accountability for decision

process, and accountability for decision outcome, see table 6 2 for further explanation) These techniques were thought to either reduce self-justification motives and/or stimulate more accurate decision-making Through experimental research, Simonson and Staw (1992) showed that minimum goal setting, threat reduction, and accountability for the decision process reduced the amount of investment after negative consequences The escalation-stimulating effect of 'accountability for decision outcomes' coupled with the de-escalation effect of 'threat reduction' gives support to self-justification motives as a cause of escalation These effects indicate that reducing justification motives leads to de-escalation This is also evident in the fact that when individuals are held responsible for how they make decisions rather than the achieved consequences de-escalation is achieved A curious finding is that thorough decision-making (identifying pros and cons) does not seem to reduce escalation tendencies Simonson and Staw indicated that individuals might need to be pointed to the right elements of a decision rather than being given general instructions However, one could argue that identifying pros and cons is not a method of thorough decision-making Moreover, the technique itself can foster justification motives since decision-makers can identify pros or cons that can help them in justifying their decision

Following Simonson and Staw (1992), Boulding et al (1997) devised and tested decision-making procedures that might reduce escalating commitment tendencies to failing new products They proposed five procedures (highlighting environmental uncertainty and possible negative outcomes prior to the initial investment decision, highlighting the opportunity costs of continued investment[18], pre-commitment to a predetermined stopping rule, pre-commitment to a self-specified stopping rule, sequential decision decoupling, see table 6 2 for further explanation) Based on the results of experimental work, Boulding et al (1997) came up with three main conclusions First, giving decision-makers improved information does not reduce escalation since managers distort information to justify commitment Second, procedures such as decision decoupling and predetermined stopping rule that decrease reliance on information are most effective in generating de-escalation And finally, if managers believe that they can control the uncertainties then tendency to escalate persists

[18] Highlighting the opportunity costs is not really a technique but rather providing an objective piece of information to the decision maker Hence it should be classified under the second group of de escalation studies

Table 6.2: De-escalation techniques tested by Simonson and Staw (1992) and Boulding et al. (1997).

Technique	**Explanation (Simonson and Staw, 1992: 421)**	**Purpose**
Thorough Decision-making	"Instructing decision-makers to prepare a detailed outline of the advantages and disadvantages of each action alternative prior to reaching a decision"	Stimulating more accurate decision-making
Minimum goal setting	"Instructing decision-makers to outline minimum target levels which if not achieved will lead to a change in policy"	
Threat reduction	"Reducing concerns about self- and external justification"	Reducing self-justification motives
Self-diagnosticity	"Informing decision-makers that their decisions are reliable indicators of their abilities"	Mixed: Have potential for stimulating more accurate decision-making but they can heighten self-justification motives.
Accountability for decision process	"Informing decision-makers that their decisions will be evaluated on the basis of the effectiveness of their decision process"	
Accountability for decision outcome	"Informing individuals that they will be evaluated on the effectiveness of their initial investment decisions"	
Technique	**Explanation (Boulding et al., 1997)**	**Purpose**
Highlighting environmental uncertainty & possible negative outcomes prior to the initial investment decision	Subjects were given "distributional information about the key uncertainties" and "simulation results of risk analysis". (p170)	Decreasing self-justification worries and decreasing the possibility of being blamed for failure
Pre-commitment to a predetermined stopping rule	Managers are offered "the use of a stopping rule devised by an expert analyst and then ask them to commit to this rule at the time of the product launch" (p166)	Restricting the manager's tendency to use nonnormative decision rules when making the stop/no stop decision
Pre-commitment to a self-specified stopping rule	Subjects were asked to specify an own stopping rule and precommit to it. (p171)	
Sequential decision de-coupling	Subjects were "asked to assume that a go decision was made by another employee of the company. They were then asked to serve as an independent evaluator of the stop/no stop decision" (p171).	Takes away justification worries

Based on a field survey of information system auditors, Keil and Robey (1999) also indicated that publicly stated limits and minimum goal setting are associated with de-escalation. However, interestingly, their survey identified that de-escalation called for significantly less tolerance for failure and more outcome-oriented evaluations which are in conflict with Simonson and Staw's (1992) conclusion regarding threat reduction and accountability for decision process, respectively. This conflict could be due to the fact that in the Keil and Robey's (1999) work, it is not clear whether the identified factors are a cause or a consequence of de-escalation. Keil and Robey also found that separation of responsibility for

initiating and evaluating projects and identifying clear criteria for success and failure are associated with de-escalation

Another study on de-escalation took a different approach Based on case research, Montealegre and Keil (2000) developed a process model of de-escalation comprised of four phases i Problem recognition, ii re-examination of prior course of action, iii search for alternative course of action, and iv implementing an exit strategy For phase one to occur, there needs to be "a clear understanding of what is wrong with the present course of action" (Montealegre and Keil, 2000 432) Decision-makers need to accept the negative feedback Case evidence shows that decision-makers either ignore or downplay the negative feedback for significant periods (e g DAI case by Montealegre and Keil, 2000, IT project CONFIG by Keil, 1995a; Expo86 by Ross and Staw, 1986) Once the problem is recognized, the current course of action and the causes of failure should be understood and a new course of action should be determined and implemented Even though identification of these phases gives more structure to the de-escalation process, we need to realize that there can be various problems with activities in each of in these stages For instance, Schwenk (1984) identified various biases and heuristics that can take place in different stages of a strategic decision-making process These stages (goal and problem formulation, alternatives generation, evaluation and selection) identified by Schwenk (1984) are very similar to those identified by Montealegre and Keil (2000) Tools that can help decision-makers to go through these stages in a more structured, objective way could stimulate the effectiveness of the process

The de-escalation research involving specific techniques and procedures shows that taking away justification worries and identifying a stopping condition beforehand seem to lead to de-escalation Given that justification motive is one of the main causes of commitment, identifying techniques taking away such worries is a just strategy However, identifying a stopping condition beforehand may hinder any diagnostic approach that the decision-maker can take during the process Boulding et al 's (1997) conclusions also point out that giving improved information, on its own, does not solve the problem If the decision-makers do not identify the information to pay attention to and its content themselves, they are likely to fall prey for various information processing biases. For instance, the results from the previous chapter of this dissertation indicate that decision-makers are likely to selectively pay attention to confirming information when committed to a strategy

Overall, the de-escalation techniques developed should get the decision-makers to actively think about the problem and its causes and get them involved in the alternative generation and the decision-making process, as all decision support tools should For instance, the techniques should go further than just presenting decision-makers with lists of information or stopping conditions They should stimulate the decision-makers to identify these information items or stopping rules themselves This could make ignoring disconfirming information more difficult A technique that enables the decision-makers to go through all the phases of a de-escalation process as pointed out by Montealegre and Keil (2000) would be a very useful tool for decreasing both escalation and selective exposure tendencies Such a technique should get the decision-makers to actively think about the problem and its causes and help identify i what type of indicators to pay attention to, ii why a certain strategy is failing, iii the consequences of re-investment, iv alternative courses of action, and v the consequences of alternatives if implemented Going through thorough stages of problem analysis and solution generation would make the pitfalls of the current action and the advantages of the potential alternatives more vivid and hence, make justification based on flawed or biased analysis less possible In the next section, System Dynamics modeling will be proposed as such a technique

6.2 System dynamics method

Before explaining how System Dynamics (SD) can be used as a de-escalation tool, a short overview of the SD approach will be given The purpose of this explanation[19] is neither to give a complete overview of the methodology nor to explain the details of how SD models can be built and analyzed It is rather to familiarize the reader with the underlying assumptions of the methodology Those who are interested in knowing more are referred to Forrester (1961, 1968), Richardson and Pugh (1981), and Sterman (2000)

6.2.1 History of system dynamics

System dynamics was developed during the 1950s by Forrester at MIT (Massachusetts Institute of Technology in Boston) as a response to the problems with the problem-solving

[19] Part of this explanation has been adapted from Pala Vriens and Vennix (2004)

methods used in practive Forrester (1975) found methods of operations research/management science (OR/MS) limited in their ability to tackle managerial issues because they ignored non-linear phenomena, dealt with simple situations, concentrated on isolated business functions instead of on the relationships between these functions, and most importantly, focused on the 'open-loop' approach, where decisions are considered as independent from the decisions themselves He found that these methods were not dealing with major problems that "made the difference between the companies that succeed and those that stagnate and fail" (Forrester, 1968 399)

First article on System Dynamics method was published in 1958 in the Harvard Business Review (Forrester, 1958) In 1961, his book *Industrial Dynamics* was published in which the theory and methodology of System Dynamics was described almost in its entirety In the 1960s, Forrester began to apply the method to areas other than industrial companies This led to the publication of the books *Urban Dynamics* (Forrester, 1969) and *World Dynamics* (Forrester, 1971) World Dynamics was the predecessor of a study carried out for the Club of Rome which eventually, resulted in the renowned report *The Limits to Growth* (Meadows, Meadows, Randers, and Behrens, 1972, Meadows, Behrens, Meadows, Naill, Randers, and Zahn, 1974). Since then SD has been applied to a variety of issues such as project management (Cooper, 1980), dynamics of worker burnout (Homer, 1985), analysis of the causes of business cycles (Sterman, 1986), new product diffusion (Homer, 1987, Maier, 1998), organizational change (Sastry, 1997), environmental dynamics (Ford, 1999), innovation implementation (Repenning, 2002) For a variety of SD applications, see Sterman (2000)

6.2.2 Core assumptions of the system dynamics approach

System dynamics has four core assumptions The first is that social systems are information feedback systems SD problem-solving practices see organizations as " a complex interlocking network of information channels" and realize that every action taken depends on "information sources in other parts of the organization and the surrounding environment" (Forrester, 1992. 43) By doing so, it rejects the 'open-loop' thinking many other problem-solving methods use SD approach realizes the dependencies amongst different parts of the organization as well as the dependencies amongst past, present, and future It recognizes that

our actions cause changes which would feed back to influence future decisions System dynamics approach closes the open loops in thinking by using the notion of feedback and feedback loops which are "a closed sequence of causes and effect, a closed path of action and information" (Richardson and Pugh, 1981 4) The interconnected feedback loops form the feedback system

By focusing on the feedback relationships between an organization and its environment, system dynamics maintains an endogenous viewpoint organizations are seen as part of the structure of a system, which creates its own dynamics The dynamic behavior is not a consequence of exogenous factors but a result of the feedback structure of the system This understanding leads to the second core assumption 'structure drives behavior' This assumption implies that the system's behavior is a consequence of the underlying feedback structure of a system Understanding this behavior is the main goal of the system dynamics approach (Richardson and Pugh, 1981)

Every feedback loop represents a dynamic process and there are two types of feedback loops positive (reinforcing) and negative (balancing) Positive loops are destabilizing They amplify change and generate exponential growth Negative loops, on the other hand, are stabilizing They counteract change and describe processes that bring the system to equilibrium (Sterman, 2000)

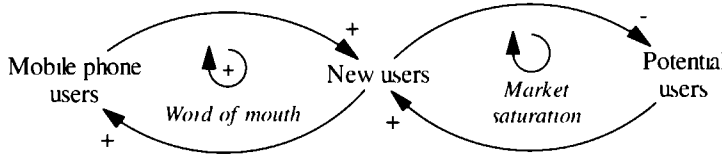


Figure 6.1: An example of a feedback system with one positive (shown with the + sign) and one negative (shown with the - sign) loop

One of the diagramming tools used to capture the structure of a system is causal loop diagrams (CLD) which show the totality of the interconnected feedback loops (For further information, see chapter 5 of Sterman, 2000) The CLD in figure 6 1 represents two interacting processes to explain the generation of new mobile phone users It is assumed that the higher the number of mobile phone users, the higher the number of new users will be

This represents the word of mouth process which leads to the diffusion of the mobile phones in a population This is a positive loop and would, on its own, generate an exponential growth in the number of mobile phone users However, no quantity can grow forever Given, a finite population, an increase in the number of new users will simultaneously lead to a decrease in the number of potential users A smaller group of potential users will, in turn, limit the number of new users This second process represents the market saturation and will slowly halt the growth dictated by the positive word of mouth loop As such, through tracing the loops, the behavior that would be generated by this structure becomes apparent Figure 6 2 shows the behavior corresponding to the feedback structure of Figure 6 1 At the beginning (the first 3 5 years), the number of users increases at an exponential rate the reinforcing loop (word of mouth) is dominant After some time (shown by the dashed line), however, the balancing loop (saturation) takes over and the growth levels off As a result of the shift in dominance from reinforcing to balancing loop, the behavior of the system changes from exponential growth to goal seeking

This is what 'structure drives behavior' refers to "All dynamics arise from the interaction of positive and negative loops" (Sterman, 2000 12) which make up the structure of the system The behavior is determined by the dominant feedback loop, namely "a loop that is primarily responsible for model behavior over some time interval" (Richardson and Pugh, 1981 285) As the dominance shifts from one feedback loop to another, the dynamic behavior of the system unfolds

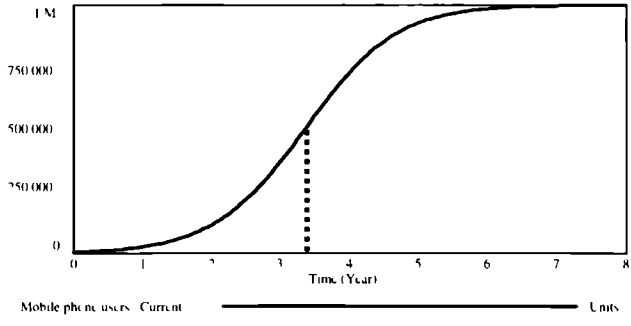


Figure 6.2: Dynamic behavior of mobile phone users

The third and fourth assumptions of SD are that using mathematical models and simulation are necessary to trace the dynamics of complex structures Due to the complexity of real

problems in social systems, understanding their behavior without an aid is very difficult (if not impossible) for the human mind Research has repeatedly demonstrated that people are not able to infer the dynamics of complex systems correctly (cf Sterman, 1994, 2000) Hence, in SD, quantified simulation models are used to trace the dynamics

6.2.3 Model building process in System Dynamics

The SD modeling process is generally comprised of the following steps i Problem statement or definition, ii Conceptual model, iii Formulation of a simulation model, iv Testing and validating, and v Policy design and evaluation

The starting point, which is the most important step in model building, is identifying the problem This phase is crucial because problem definition defines the purpose of the modeling study and sets the boundary of the model System dynamics modelers develop *reference modes of behavior* to capture the problem definition (Richardson & Pugh, 1981 21-25) This is because they would "see to characterize the problem dynamically, that is, as a pattern of behavior, unfolding over time, which shows how the problem arose and how it might evolve in the future" (Sterman, 2000 90) Figure 6 3 shows a hypothetical example of the behavior of workload in a company In this particular example, the discrepancy between the actual and the desired behavior shows that there exists a problem, which is actually worsening over time

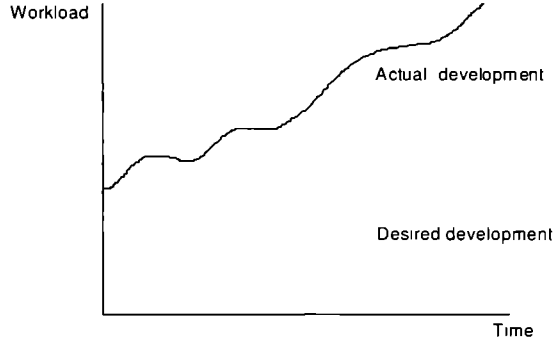


Figure 6.3: Example of a reference mode of behavior

Following problem definition, the process of model construction starts with a conceptual model The conceptual model shows the causal (feedback) structure This can either take the form of a causal loop diagram (maps showing the feedback structure of the system, see figure 6 1) or a stock and flow diagram (maps showing the feedback structure and the underlying physical structure of the system, see figure 6 4) Forrester (1968) differentiates four levels of structure i closed boundary, ii feedback loops (the basic elements of system structure), iii stocks and flows, and iv goal, actual conditions, perceived conditions, the discrepancy between goals and perceived conditions, and action resulting from the discrepancy (see figure 6 4) The boundary of the model sets the limits of the model All the components that are necessary to understand the causes of the problem should be within the model boundary In the diagramming style, the boundary is set by the clouds (see figure 6 4) These clouds represent the source and sink of the material that flow through the system

Stocks and flows are the fundamental variables in system dynamics modeling (Forrester, 1968) and are very important to understand the dynamics of a system Stocks represent the state of the system and provide the information on which decisions can be taken Flows, on the other hand, represent the decisions, actions which change the state of the system (Sterman, 2000) An important distinction between stocks and flows is that the stocks represent the amount of accumulation and the flow represents the rate of change in that accumulation Hence, whereas a stock is 'measured' at some point in time, a flow is 'measured' over a particular time period In the modeling language, stocks are represented by rectangles, and flows by valves In figure 6 4, the variable *inventory* is a stock variable The variables *production* (inflow) and *shipments* (outflow) are the flow variables

SD models represent the decision-making structure in a system The actual conditions (i e the values of stocks) which are needed to make decisions are rarely known to the decision-makers Based on the available information, decision-makers have a perception of the actual conditions which "may be either close to or far removed from the actual present state, depending on the information flow that are being used and the amount of time lags and distortion in links from information sources" (Forrester, 1992 45) Decision-makers would compare the perceived state of the system to the goals they have and take actions to correct the discrepancy that exists between the goal (i e the desired state) and the perceived state of the system In the example given in figure 6 4, the *desired inventory* represents the goal, and the actual and perceived conditions are represented by the current value of the *inventory* and *perceived inventory*, respectively The action is *production* and it is based on the *discrepancy*

between the *inventory* and *desired inventory*. This action changes the value of the current state of the system, *inventory*.

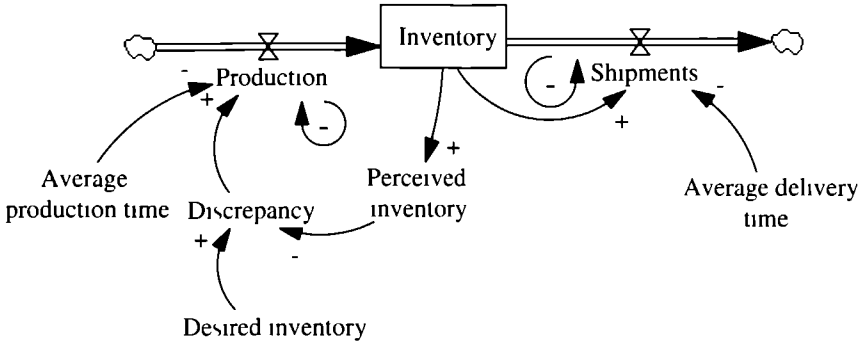


Figure 6.4: Representation of a stock-flow diagram

After identifying the feedback structure of the model, the next step is the formulation of the simulation model. This basically involves the formulation of mathematical equations for the relationships between variables and estimation of parameters. Elaborate information on equation formulation and parameter estimation is beyond the scope of the chapter. The interested reader may consult Forrester (1961, 1968), Richardson and Pugh (1981), Roberts et al. (1983), Sterman (2000) for further information.

Once model formulation is completed, the validity of the model should be established. Various tests have been developed to check the validity of and increase confidence in the model (Forrester and Senge, 1980, Barlas, 1996). There are mainly two groups of tests: structure and behavior validity tests. Behavior validity tests involve comparing the model behavior with the reference mode of behavior. However, given that the main focus of SD is understanding the underlying feedback structure of the system, structure validity is accepted as being more important than behavior validity. Amongst others, structure validity tests involve checking every equation, checking that every variable has a real-world equivalent, questioning the model boundary, and testing the model in extreme conditions.

A model whose validity is established can be used for policy experimentation. Sensitivity analyses and scenario runs can be conducted to understand the behavior of the

model under a variety of conditions These scenario runs provide more insight into the dominant feedback processes, that is, the causes, underlying the problem Based on such insight, new policies can be devised and tested

In this section, basics of system dynamics modeling have been explained More information is available through other sources (a o Forrester, 1961, 1968, Richardson and Pugh, 1981, Roberts, Andersen, Deal, Garet, and Schaffer, 1983, Sterman, 2000, Vennix, 1996) In the next section, how SD can be used to counter escalation and selective exposure tendencies will be explained

6.3 Role of system dynamics in escalating commitment and selective exposure to information

The system dynamics method can be used to help decision-makers reduce irrational escalation and confirmation tendencies Each of these will be looked at separately

6.3.1 System dynamics for de-escalation of commitment

Irrational escalation takes place when decision-makers hope to "turn the situation around" by continued investment and when they invest to justify their previous decisions Research showed that objective information has the possibility of stimulating de escalation However, previous research and case evidence also showed that objective information (e g on projects economics and failure reasons), especially when disconfirming, is downplayed The responsibility feeling and need for justification weighs more as a decisive factor in making the re-investment decision Thus, simply presenting the decision-makers with information is not enough Montealegre and Keil (2000) proposed that for de-escalation to occur, decision-makers should accept the failure information as genuine, understand the causes of the problem, and devise alternative courses of action SD modeling can help decision-makers go through these phases As explained previously, the main purpose of modeling is understanding *why* a certain situation has occurred (e g the failure of the strategy) and use

this information to design robust strategies to improve the situation (e g either adjustments to the existing strategy or design of a new strategy to solve the problem)
If used in its qualitative form, namely, causal loop diagrams, the focus on the feedback structure would make the variables of interest in the problematic situation and the (feedback) relationships amongst them explicit This would give the decision-makers the opportunity to formalize their hidden cognitive processes and question any existing inconsistency (in their mental models and/or reasoning process) Through the analysis of this model, decision-makers can identify the variables on which information should be collected, understand why the chosen strategy is failing, the nature of the failure causes, and what the consequences would be if the strategy were continued By making assumptions and analysis more explicit and giving the decision-making more formal grounds, using CLDs would make it more difficult for decision-makers to ignore information both on the (present and future) project performance and alternatives This would, in turn, facilitate de-escalation

If used in its quantitative form, namely, stock-flow models, simulation would enable the decision-makers to see the link between structure and behavior, test various assumptions, see the dynamic consequences of not only re-investment in the current strategy, but also of possible alternative courses of action, and test the robustness of alternative actions Moreover, a simulation model has the advantage of providing a safe environment in which various strategies or scenarios could be tried out prior to selection and implementation

In this chapter, the focus will be on testing the effectiveness of a qualitative SD model, i e the causal loop diagram (CLD), in reducing escalation and selective exposure tendencies For the reasons explained above, the expectation is that decision-makers who use a CLD while making a re-investment decision after receiving negative decision consequences will i feel less committed to the strategy and ii invest less money in it than those who do not use any decision aid

Hypothesis 1. *After subjects have made the initial investment decision and received negative consequences, those using a causal loop diagram will a) invest less money and b) feel less committed in the second investment decision than those not using any decision aids*

A CLD is essentially made of variables and the causal relationships between these variables In order to understand more about the role of CLDs, a second decision-aid that lists the variables of the CLD will be used Such a list of variables can be seen as a proxy to a typical result of methods such as market research or critical success factors that organizations routinely use to understand their organization and its environment (cf , Kahaner, 1997) Given that the strength of a CLD comes from illustrating the feedback relations, analysis of which can generate insight into the dynamic consequences of actions, it is proposed that a CLD will be more effective than a list of variables in reducing escalation and selective exposure tendencies

> ***Hypothesis 2.*** *After subjects have made the initial investment decision and received negative consequences, those using a causal loop diagram will a) invest less money and b) feel less committed in the second investment decision than those using a list of variables*

For the effect of a list of variables as compared to using no decision-aid, on the other hand, no expectations will be given Following the results of Conlon and Parks (1987), who showed that choosing amongst a list of five information items leads to lower commitment, one could propose that seeing a list of variables can lead to de-escalation Similar results were seen in experiment two in chapter four However, the information items they used (a 5-year forecast, an R&D prospectus, an R&D report, a set of justification memos, and a CEO report) are different in nature than typical variables in a CLD (e g price of a product, the amount of customer base) On the other hand, considering the assertions indicated in section 6 1 on how individuals can bias and hence, ignore information, one could expect that expectation that acquiring a simple list of variables will not lead to de-escalation Given these mixed possibilities, no hypothesis will be given on the effect of a list of variables as compared to not using a decision aid

6.3.2 System dynamics for overcoming selective exposure to information

The usage of the SD method could also counter the confirmation tendencies In the previous chapter, it was shown that people responsible for the choice of a strategy do not only escalate

after failure feedback but also selectively use confirming information on (future) performance More specifically they prefer information that indicates high probability for future success, information on similar companies that were successful with the same strategy, information that indicates that their strategy is better than the alternative strategies, and that the actual performance is better than the reported The motive behind such selective exposure is to decrease dissonance and show that the chosen strategy has the potential to be successful If CLDs are used the investment decision would receive more objective, formal grounds The consequences of re-investment can be identified and based on this information, the (dis)advantages of the current strategy can be made explicit Such a formal process could eliminate the need for confirmation Moreover through model analysis, the important variables that should be monitored and their implications for the performance can be identified This could make it more difficult for the decision-makers to avoid the relevant information even though it might be disconfirming Hence it is expected that a CLD will decrease selective exposure tendencies in those items for which selective tendencies were shown in the previous chapters

> ***Hypothesis 3.*** *As compared to subjects who do not use a decision aid those using a causal loop diagram before the second investment decision will be less likely to prefer information that indicates that a) the strategy will be successful in the future b) the implemented strategy is better than the alternative c) similar companies have been successful with the same strategy and d) the actual performance is better than the reported*

Since the strength of the CLDs is believed to be in the feedback relationships, it is hypothesized that CLDs will decrease selective exposure tendency more than the list of variables

> ***Hypothesis 4.*** *As compared to subjects who use a list of variables those using a causal loop diagram before the second investment decision will be less likely to prefer information that indicates that a) the strategy will be successful in the future b) the implemented strategy is better than the alternative c) similar companies have been successful with the same strategy and d) the actual performance is better than the reported*

6.4 Method

As in the majority of the (de-)escalation literature, the present study used an experimental approach, using business students as subjects The aim of this study is to test the hypothesis that a CLD will be an effective tool in decreasing escalation of commitment To be able to attribute the observed effects to the object of this study, namely the use of a CLD, it is important to test its effectiveness in a controlled setting Therefore, an experiment using a decision-making simulation was designed to test the hypotheses developed in section 6 3

6.4.1 Overall Design

The subjects were 168 undergraduate students The experiment was part of a methodology course and participation was on a voluntary basis Subjects were randomly assigned into one of the three conditions (a 1x3 design) receiving no decision-aid, a list of variables or a CLD The experiment was paper-based and took about 50 minutes

6.4.2 Experimental Task

All the subjects were asked to work on a supermarket case that was also used in experiment 3 (see appendix III and chapter 5) Here, a short description of the task will be given For more information, please refer to section 5 1 1 The case described a successful high quality supermarket chain that was facing some problems regarding profits and market share Hence, there was a need for a new strategy The subjects were told that they were a long-term member of the board of directors and were strongly supporting the so-called discounting strategy that was proposed as a solution to the problems faced Hence, all the subjects were in the committed situation After writing a short paragraph (as part of the commitment inducement) on why they thought the discounting strategy is a good strategy the subjects answered the experimental questionnaire which included questions to measure their commitment The subjects were asked to indicate how much they would invest in the discounting strategy and the extent to which they felt committed to it Consecutively, they all received negative decision consequences that stressed that the strategy was not performing well Before the decision on whether to go on with the strategy or not, the experimental

manipulation took place Subjects were randomly assigned to one of the three experimental conditions (see figure 6 5 for the experimental design) Following the manipulation, the subjects were asked to make a decision on how much they would re-invest in the discounting strategy again They were then told that they were to write a report to the board explaining their point of view and were asked to indicate the type of information they would like to include in this report

6.4.3 Independent variables: experimental manipulations

There was only one independent variable in this study availability of a decision aid (see figure 6 5 for the design) The groups differed from one another with respect to the extra information they received before making their second investment decision Altogether, there were three groups one control (baseline) and two experimental groups

Baseline The baseline condition was identical to the 'committed/negative consequences' condition in the third experiment explained in chapter 5 The subjects in this group received only the negative decision consequences and no decision aid prior to the second investment decision

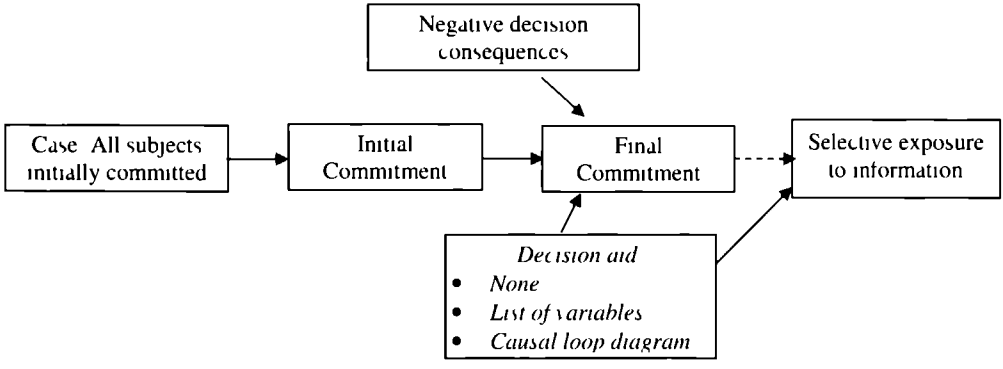


Figure 6.5: Experimental design The manipulation is shown in italics

The subjects in the two experimental conditions were told

> During the last 6 months your supermarket did research to understand the competitive environment The purpose of this research was to gain more insights into important factors that affect your business

Consecutively, both experimental groups were given the results of this research.

List of variables. In this condition, alongside the negative decision consequences, the subjects were presented with a list of important factors. They were told that the result of the research done was,

> "a list of important factors that the company should monitor".

Causal loop diagram. In this condition, alongside the negative decision consequences, the subjects were presented with a causal loop diagram. They were told that the result of the research included

> "a causal model which shows the relations amongst important factors that affect the company's business."

The list and the model can be found in exhibits 6.1a and 6.1b, respectively.

Exhibit 6.1a: Experimental manipulation: List of variables

During the last 6 months, your supermarket did research to understand the competitive environment. The purpose of this research was to gain more insights into important factors that affect your business. The result was a list of important factors that your company should monitor. Below you can see this list.

Important Factors

Price: The average amount of money the customers pay to buy goods at your supermarket.

Market share: The percentage of the total market that shops at your supermarket.

Revenue: The amount of money that your supermarket receives from sales of products to customers.

Profit: This is the money left after the deduction of costs. It is calculated as revenue – costs.

Costs: Total money spent for operations of your supermarket.

Quality of assortment: This is the quality level of the total assortment at your supermarket.

Competitor's market share: The percentage of the total market that prefers to shop at the competitor supermarket.

Competitor's price: The average amount of money the customers pay to buy goods at the competitor's supermarket.

Competitor's revenue: The amount of money that the competitor supermarket receives from sales of products to customers.

Competitor's profit: This is the money left after the deduction of costs. It is calculated as competitor's revenue – competitor's costs.

Competitor's costs: Total money spent for operations of competitor's supermarket.

Competitor's Quality of assortment: This is the quality level of the total assortment at competitor supermarket.

Price sensitivity of customers: measures how strongly customers react to a change in price.

Quality sensitivity of customers: measures how strongly customers react to a change in quality.

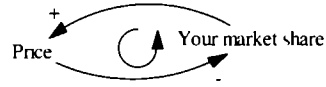
Exhibit 6.1b: Experimental manipulation Causal loop diagram

During the last 6 months, your supermarket did research to understand the competitive environment The purpose of this research was to gain more insights into important factors that affect your business The result was a causal model which shows the relations amongst these important factors Below you can see this model with a short explanation

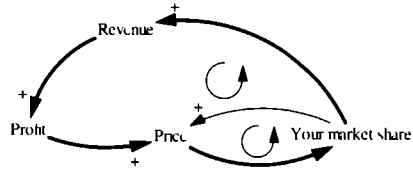
The causal model

In the following, an explanation amongst the above listed variables will be given The explanation will eventually lead to a full model showing all the relations

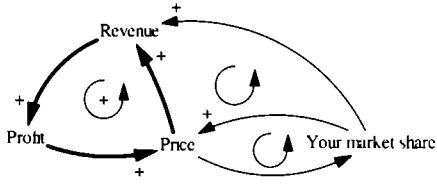
The price decrease of your supermarket was triggered due to a decrease in your market share With a decrease in prices, you can enable an increase in your market share



If the prices are decreased this will lead to an increase in your supermarket's market share The increase in share will lead to an increase in revenues and profit The increase in profit will make a further decrease in prices possible which can enable further market share increase



At the same time, however, a decrease in prices will lead to a decrease in both revenues and profit which will make further price decrease difficult



If the profits are increased this would give your supermarket the ability to offer high quality assortment which will increase the quality of your assortment and hence your market share

The explained effect of price and quality on market share depends on the price sensitivity and quality sensitivity of the customers

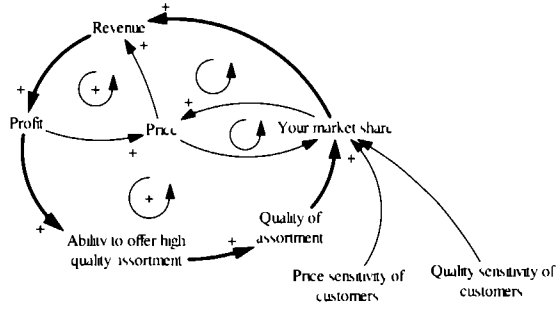
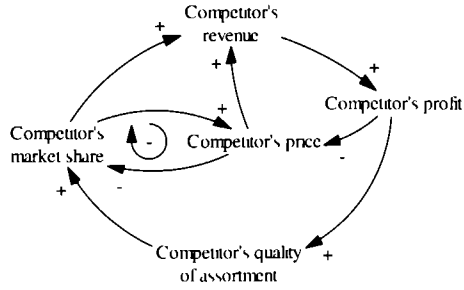
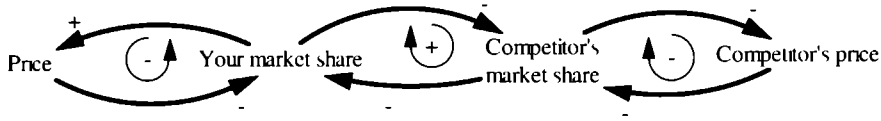


Exhibit 6.1b (continued): Experimental manipulation: Causal loop diagram

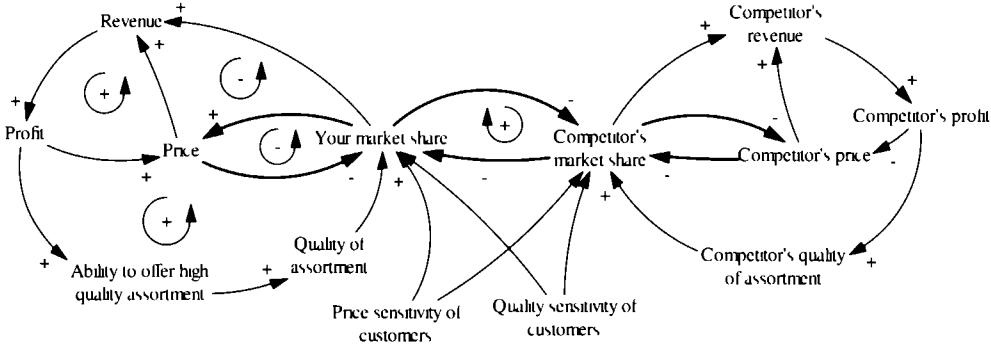
A similar set of relationships also exists for the competitor:



The modeling efforts also indicated the link between your supermarket and the competitor. An increase in your market share leads to a decrease in the competitor's market share. This decrease can make the competitor decrease his prices and hence, gain market share leading to a decrease in market share for your supermarket



All these relationships put together creates the following model



6.4.4 Dependent variables

The dependent variables were measured in the same way as in the previous experiments. Here, a short description will be given. Please refer to chapters 4 and 5 for detailed information.

Measurement of commitment: Two different measures of commitment were used First, subjects were asked to indicate the amount of money they would like to invest in the discounting strategy This represents the (reported) behavioral commitment Second, to measure their attitudinal commitment, they were asked to answer five questions on their felt-commitment to the strategy Both measurements were taken twice, once before and once after the feedback with decision consequences, to be able to investigate the change in commitment as a result of using the decision aid

Measurement of information preference: confirmation bias: The subjects were given the same information items as in experiment 3 (see table 5 1) For each item, they were asked to indicate their preferred information to include in a report they would like to write to the board explaining their point of view The percentage of people choosing the confirming information per category was used as the dependent variable The categories were kept the same to achieve consistency with the previous experiment, however, only the results for the categories for which selective exposure tendencies were shown in chapter 5 (predicted future performance, alternative strategies, anecdotal information on similar companies, and correctness of the reported performance) will be presented in this chapter

6.5 Results

In this section, results for both commitment and information search will be presented First, the results of the effect of a decision aid on commitment and escalation of commitment will be presented and next, the effects on information preference

The reliability of five items to measure the attitudinal commitment was 0 83 (Cronbach's Alpha) The factor analysis run on the same items also indicated that all the items loaded on a single factor The factor loadings are given in table 6 3

Table 6.3: Factor analysis results for the commitment measure

Items in the commitment measure	Factor loadings
I will stick to the discounting strategy	0 807
I do not feel any loyalty to the discounting strategy	0 790
I am committed to the discounting strategy	0 883
I feel obligated to invest in the discounting strategy	0 658
I feel attached to the discounting strategy	0 728

6.5.1 Analysis for commitment and escalation of commitment

Analyses were performed for the initial commitment, final commitment, and the difference between initial and final commitment levels

Initial commitment was measured after the subjects read the case information and before the decision consequences and the manipulation Given that all the subjects were in the committed condition, there should be no differences in the commitment levels of the subjects in different groups Analysis of the results showed that there were indeed no significant differences between the groups (see table 6 4 for the averages) The commitment levels were also in agreement with the subjects from experiment 3 As would be expected, there were no significant differences from the committed group of experiment 3 (experiment 3 average initial behavioral commitment 786,718, p = 0 550, average initial attitudinal commitment 5 175, p = 0 140) but the differences from the not-committed group were significant (experiment 3 average initial behavioral commitment 371,323, $p < 0\ 001$), average initial attitudinal commitment 2 922, $p < 0\ 001$)) This indicates that the inducement of the initial commitment in the case description was successful

Table 6.4: Mean initial investment and initial attitudinal commitment

Decision aid	N	Initial Behavioral commitment		Initial Attitudinal commitment	
		Mean	Std Dev	Mean	Std Dev
No decision aid (control group)	38	774,473 68	197,082 743	5 505	1 0121
List of important factors	40	756,250 00	232,651 247	5 350	0 9224
Causal loop diagram	31	759,677 42	254,106 065	5 381	1 0849
Total	109	763,577 98	225,509 805	5 413	0 9949

Analysis for escalation of commitment was done in two ways First, as in previous work, final commitment was analyzed Second, for the change in commitment, final commitment was analyzed while controlling for the initial commitment and the difference between initial and final commitment levels was analyzed

First, to investigate the effect of the decision aid on escalation, one-way ANOVA was conducted on both *final commitment* measures (see table 6 5 for the averages) The 1x3 analysis of variance for behavioral commitment run on money invested yielded a marginally

significant effect for the manipulation ($F(2, 105) = 2\,703$, $p < 0\,1$) Examination of planned Helmert contrast showed that the experimental conditions differed significantly from the control condition, that is, groups who received a decision aid (list or CLD) invested less than the group who did not receive anything ($t(105) = -2\,266$, $p < 0\,05$) However, there was no significant difference in money invested between the two experimental groups ($t(105) = -0\,715$, $p = 0\,476$) Even though the CLD group invested less than the list group this difference was not significant A further analysis with post-hoc tests showed that the difference between the control group and the experimental groups was mainly due to the CLD group The difference in investment between the control and list groups was not significant (Games-Howell, $p = 0\,198$) whereas the difference between control and CLD group was marginally significant (Games-Howell, $p < 0\,1$) Difference between the list and CLD groups remains non-significant (Games-Howell, $p = 0\,783$)

The 1x3 analysis of variance for attitudinal commitment yielded a significant effect for the manipulation (Welsch $F(2, 70\,596) = 6\,472$, $p < 0\,005$) Examination of the planned contrasts revealed similar results as in behavioral commitment The two experimental conditions differed significantly from the control condition ($t(73\,801) = -3\,013$, $p < 0\,005$) but there was no significant difference between the experimental conditions ($t(68\,528) = -1\,610$, $p = 0\,112$) The post-hoc tests also indicated that the difference between the list and control group was not significant (Games-Howell, $p = 0\,209$) whereas the difference between CLD and control group was (Games-Howell, $p < 0\,005$)

Overall, these results indicate that as compared to not using a decision aid, using a CLD prior to the second investment decision leads to a lower commitment whereas using a list of variables does not (see figure 6 6) Given these results, there is support for hypothesis 1b, a marginal support for hypothesis 1a, but no support for hypothesis 2

Table 6.5: Averages for the final commitment levels

Final commitment	N	Behavioral commitment		Attitudinal commitment	
		Mean	Std Dev	Mean	Std Dev
No decision aid (control group)	38	623 947 37	313 709 622	4 9	1 2681
List of important factors	40	493,750 00	348 290 238	4 375	1 4431
Causal loop diagram	31	433,333 33	393 773 376	3 903	1 0236

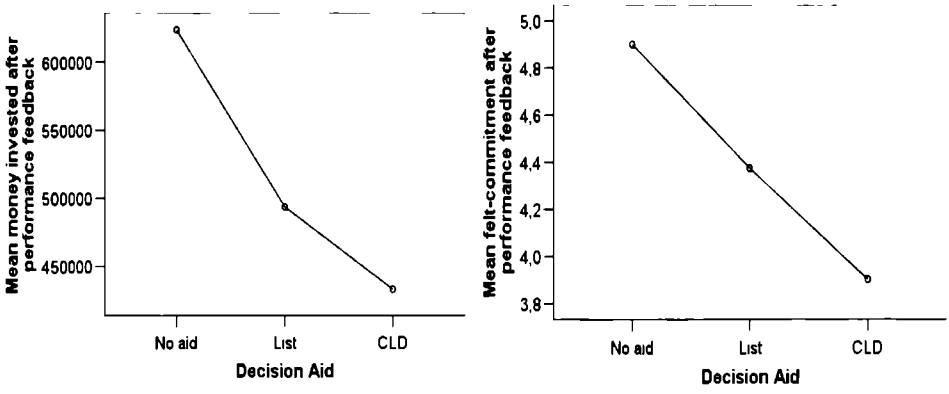


Figure 6.6: Mean final behavioral and attitudinal commitment.

Additional analysis was done to test how the use of a decision aid affected the change in commitment. As in chapters 4 and 5, first, final commitment was analyzed while controlling for the initial commitment. Second, the difference between the two commitment levels was analyzed. Both analyses gave the same result regarding escalation.

ANOVA for *final commitment while controlling for the initial commitment* (see table 6.6) for money invested returned a marginally significant main effect for the manipulation ($F(2, 104) = 2.799$, $p < 0.1$) and a significant effect for initial money invested ($F(1, 104) = 26.386$, $p < 0.001$). Planned Helmert contrast showed that the subjects in the experimental groups invested less than the subjects in the control group ($p < 0.05$). There was no significant difference between the two experimental groups ($p = 0.452$).

The results were similar for attitudinal commitment. There was a significant main effect for the manipulation ($F(2, 105) = 6.296$, $p < 0.005$), and the initial felt-commitment ($F(1, 112) = 49.751$, $p < 0.001$). Planned Helmert contrasts performed indicate that the subjects in the experimental groups felt less committed than the subjects in the control group ($p < 0.005$) and the subjects receiving the CLD felt less committed (marginally significant) than the subjects receiving a list ($p < 0.06$).

These results indicate that receiving a decision-aid leads to decreased levels of commitment independent of the initial commitment level.

Table 6.6: Averages for the final commitment levels while controlling for the initial commitment.

Final commitment while controlling for the initial commitment	N	Behavioral commitment		Attitudinal commitment	
		Mean[1]	Std. Dev	Mean[2]	Std. Dev
No decision aid (control group)	38	614,881.9	50,994.510	4.833	0.171
List of important factors	40	497,310.4	49,678.361	4.420	0.167
Causal loop diagram	31	440,069.1	57,373.034	3 926	0.189

[1] Covariates appeared in the model are evaluated at: initial money invested = 761,388.89
2 Covariates appeared in the model are evaluated at: initial felt commitment = 5.413

Further analysis was done on the difference between the initial and final commitment measures (see table 6.7 and figure 6.7). For difference in money invested, ANOVA showed a marginally significant main effect for the manipulation ($F(2,105) = 2.474$, $p < 0.1$). The planned Helmert contrasts indicated a significant difference between the two experimental groups and the control group ($t(105) = -2.167$, $p < 0.05$) but no difference between the experimental groups ($t(105) = -0.686$, $p = 0.495$). The post-hoc tests showed that there was no difference between the commitment levels of no-decision aid group and the list group (Games-Howell, $p = 0.237$) and between the CLD and list groups (Games-Howell, $p = 0.800$) but a marginally significant difference between the no-decision aid group and the CLD group (Games-Howell, $p < 0.1$).

For difference in felt-commitment, ANOVA showed a significant main effect for the manipulation (Welsch $F(2, 65.325) = 6.701$, $p < 0.005$). The planned Helmert contrasts indicated that the subjects in the experimental conditions decreased their commitment significantly more than the subjects in the control group ($t(100.533) = -3.222$, $p < 0.005$). Moreover, the subjects receiving a CLD decreased their commitment more than those who received a list of important factors ($t(67.939) = -1.762$, $p < 0.1$). Once again, the post-hoc tests showed that there was no difference between the no-decision aid and the list groups (Games-Howell, $p = 0.280$) whereas the difference between the control and the CLD groups was significant (Games-Howell, $p < 0.005$). There were no differences between the CLD and list groups (Games-Howell, $p = 0.190$).

These results indicate that as compared to not using a decision-aid, using a CLD leads to de-escalation, but using a list of variables does not. However, when compared to one another, there are no significant differences between the CLD group and the list of variables

group. Overall, the results from the analysis of the change in commitment levels also give support for the hypothesis 1, but not for hypothesis 2.

Table 6.7: Average differences in behavioral and attitudinal commitment levels.

Difference between the initial and final commitments	N	Difference in Behavioral commitment		Difference in Attitudinal commitment	
		Mean	Std. Dev	Mean	Std. Dev
No decision aid (control group)	38	-150,526	275,356.745	-0.605	0.7993
List of important factors	40	-265,000	340,851.122	-0.975	1.2796
Causal loop diagram	31	-318,333	350,242.117	-1.477	1.1191

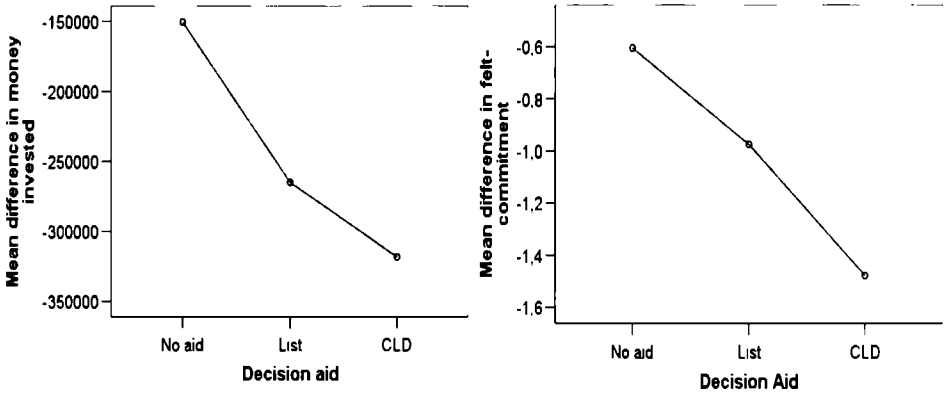


Figure 6.7: Mean changes in the behavioral and attitudinal commitment levels.

Summary for commitment: In this experiment, the effect of a decision aid on escalation was studied. The results show that as compared to the people not receiving a decision aid, people who receive a CLD prior to the second investment have lower final commitment levels and they decrease their commitment more upon receiving negative consequences. Receiving a list of variables, on the other hand, did not have any effect on the final or change in commitment level. It should, however, be noted that even though CLDs lead to de-escalation and list of variables did not, there was no significant difference between the commitment levels of the people using a CLD and those using a list of variables. These results give support for hypothesis 1 but not for hypothesis 2.

6.5.2 Analysis for information preference under escalating commitment

Hypotheses 3 and 4 predicted that as compared to using no decision-aid or a list of variables, using a CLD will lead to a decrease in tendencies for confirmatory information search Below, analysis results per information item will be given (see table 6 8)

For the information category *future predicted performance*, ANOVA yielded a significant main effect for the decision aid manipulation (Welsh F(2, 67 316) = 3 645 , $p <$ 0 05) Examination of the planned Helmert contrast showed that the experimental conditions differed significantly from the control condition, that is, as compared to the group that did not receive a decision aid, less people in the groups that received a decision aid (list or CLD) asked for the confirming information indicating the future success of the strategy (t(88 028) = -2 703, $p <$ 0 01) However, there was no significant difference between the two experimental groups (t(64 186) = -0 487, p = 0 628) A further analysis with the post-hoc tests showed that the only significant difference was between the no decision aid group and the CLD group (Games-Howell, $p <$ 0 05)[20] Given these results, there is support for hypotheses 3a but not for 4a

For the information category *alternative strategies*, ANOVA yielded a significant main effect for the decision aid manipulation (Welsh F(2, 68 236) = 3 655, $p <$ 0 05) Examination of the planned Helmert contrast showed that the experimental conditions differed significantly from the control condition (t(81 416) = -2 706, $p <$ 0 01) with no significant difference between the two experimental groups (t(64 502) = 0 013, p = 0 989) A further analysis with the post-hoc tests showed consistent results with the planned contrasts Both experimental conditions differed significantly from the control condition (List Games-Howell, $p <$ 0 06, CLD Games-Howell, $p <$ 0 1) whereas there was no difference between the experimental groups Given these results, there is support for hypothesis 3b but not for 4b

For the information category *anecdotal information on similar companies*, ANOVA yielded a significant main effect for the decision aid manipulation (Welsh F(2, 63 951) = 5 788 , $p <$ 0 01) Examination of the planned Helmert contrast showed that the experimental conditions differed significantly from the control condition (t(95 358) = -3 221, $p <$ 0 05) and there was a marginally significant difference between the two experimental groups (t(59 575) = -1 764, $p <$ 0 1) A further analysis with the post-hoc tests showed that the only significant

[20] Difference between the control and list groups p = 0 104 and difference between the list and the CLD groups p = 0 878

difference was between the no decision aid group and the CLD group (Games-Howell, $p < 0.01$)[21] Given these results, there is support for hypotheses 3c but not for 4c

Table 6.8: Mean preferences for different information items

		Information items					
		Future predicted performance		Alternative strategies		Anecdotal information on similar companies	
	N	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
No decision aid (control group)	38	0.79	0.413	0.71	0.460	0.89	0.311
List of important factors	40	0.58	0.501	0.45	0.504	0.75	0.439
Causal loop diagram	31	0.52	0.508	0.45	0.506	0.55	0.506
Total	109	0.63	0.484	0.54	0.501	0.74	0.439

For the information item *correctness of the reported performance*, the subjects received three possible choices a) the actual performance is better than it was reported, b) the actual performance is worse than it was reported, and c) the actual performance is correctly reflected in the report (see table 6.9 for the averages per category) ANOVA on these three answer categories reflected that the decision aid manipulation significantly affected the choice in categories a (Welsh $F(2, 69.970) = 7.383$, $p < 0.005$) and c (Welsh $F(2, 70.124) = 3.054$, $p < 0.06$) Significantly less people in the CLD group wanted information indicating that the actual performance is better than reported Post-hoc tests showed that the preference for option a was significantly less for the subjects that received a CLD (CLD < control $p < 0.01$ (Games-Howell), CLD < list $p < 0.01$ (Games-Howell)) At the same time, significantly more people in the CLD group preferred information indicating that the actual performance is correctly reflected in the report (option c) Post-hoc tests showed that the preference in the CLD group was significantly more than in the list group (CLD > control Games-Howell $p = 0.125$ (Games-Howell), CLD > list $p < 0.07$ (Games-Howell)) Given these results, there is support for hypotheses 3d and a marginal support for hypothesis 4d

[21] Difference between the control and list groups $p = 0.217$ and difference between the list and the CLD groups $p = 0.191$

Table 6.9: Mean preferences for the answer categories of the information item on actual performance

		Information item correctness of the reported performance					
		Actual performance is better than reported		Actual performance is worse than reported		Actual performance is correctly reflected	
	N	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
No decision aid (control group)	38	0 39	0 495	0 03	0 162	0 55	0 504
List of important factors	40	0 40	0 496	0 08	0 267	0 53	0 506
Causal loop diagram	31	0 10	0 301	0 13	0 341	0 77	0 425
Total	109	0 31	0 465	0 07	0 262	0 61	0 491

Summary for information preference: These findings suggest that in escalation of commitment situations, using a CLD before the second investment decision decreases the selective exposure tendencies of the respondents in most of the information categories As compared to people without a decision aid, less of the people receiving a CLD deny the existence of negative feedback and show less preference for confirming information indicating future success of the strategy and its superiority over the alternatives

6.6 Conclusion and Discussion

This research examined the effect of a causal loop diagram in decreasing escalation of commitment and selective exposure tendencies Overall, there is support that CLDs can be used for generating de-escalation as well as decreasing selective exposure tendencies

The findings from the analysis on final commitment clearly showed that the escalation effect was significantly decreased in subjects receiving a CLD These results support the initial hypothesis A result that was contrary to the expectations was that when compared to one another commitment levels for those using a CLD did not differ significantly from those using a list of variables Even though the list group invested and felt more committed than the CLD group, these differences were not significant Analysis on change in commitment gave the same results On the other hand, the results also indicated that as compared to not using any decision aids, receiving a list of variables did not lead to a decrease in commitment So,

overall, it can be concluded that using a list of important variables prior to the second investment decision does not lead to de-escalation whereas having a CLD showing the feedback relationships between these variables does

The analysis in the effectiveness of a decision aid in decreasing confirmatory information preference also gave support for using CLDs For all four information items, namely, future predicted performance, alternative strategies, anecdotal information on similar companies and correctness of the reported performance, less people using a CLD asked for confirming information as compared to people using no decision aid Hence, it can be concluded that CLDs are helpful in decreasing the confirmation tendencies There were, however, no significant differences between using a CLD and using a list As compared to not using a decision aid, using a list of variables was effective in decreasing confirmation tendencies only for the information item alternative strategies

These results should be seen as the first indication that CLDs can be used to avoid escalation of commitment and selective exposure to information Given that a list of variables did not lead to de-escalation and decrease in confirmation tendencies but a CLD did this effect could be attributed to the explicitness of the feedback structure CLDs offer above a list of variables Yet, it is not clear whether it is just seeing these relationships or understanding the dynamic consequences that are implied by these relationships that generates de-escalation and decrease in confirmation tendencies Given that the latter requires structure analysis that necessitates a complex cognitive task and more time, it would be more probable to assume that such deep understanding of the dynamics did not occur However, the way the subjects used the CLDs and whether they analyzed it (appropriately) were not measured and hence, a conclusive answer to *why CLDs were effective* cannot be given

It should also be realized that the subjects did not build the model themselves They received a two page document explaining the causal structure behind the problematic situation The next step in researching the effectiveness of CLDs should be investigating whether going through a model building session decreases escalation further There is evidence that being involved in model building increases the benefits from using SD models (Rouwette, 2003) Similarly, model building itself could stimulate further de-escalation

Even though CLDs are very useful for representing the feedback structure of systems (Sterman, 2000), they can be insufficient for understanding the dynamic implications of actions. This problem gets more pressing as the problem situation and the model get more complex. Hence, to see the full effect of System Dynamics as a de-escalation tool, the effectiveness of a quantitative system dynamics model in generating de-escalation should be tested.

6.7 Summary

In this chapter, the results of an experiment studying the effect of using a decision aid on de-escalation and selective exposure tendencies were discussed. As decision aids causal loop diagram and list of variables were used. A causal loop diagram is an end product of qualitative System Dynamics study whereas a list of variables can be seen as the end product of methods such as market research or critical success factors that organizations routinely use to understand their organization and its environment. The results showed that while a CLD stimulates de-escalation and decreases selective exposure to information, a list of variables is not effective in either of the accounts.

Chapter 7

Conclusions and future research

The purpose of this dissertation was to accomplish two goals:

1) Studying selective exposure to information under escalation situations;
2) Introducing and testing System Dynamics modeling as a tool to decrease escalation of commitment and selective exposure tendencies under escalation situations.

In this chapter, the findings will be discussed, conclusions and tentative conclusions will be presented, the relevance and the limitations of the research will be discussed, and recommendations for future research will be proposed. The tentative conclusions do not follow directly from the experimental results but they provide an interpretation consistent with these results. Further research is required to validate them.

7.1 Summary of the experimental findings and conclusions

In this section, the findings of the experimental results for both goals identified above will be discussed separately and conclusions as well as tentative conclusions will be drawn. To support the summary of the findings, an overview of all the experiments is given in table 7.1.

Table 7.1: Overview of all the experiments.

	Experiment 1 (Chapter 4)	**Experiment 2 (Chapter 4)**	**Experiment 3 (Chapter 5)**	**Experiment 4 (Chapter 6)**
Case	Beefeater restaurant	Beefeater restaurant	Supermarket chain	Supermarket chain
Subjects	Wageningen University – undergraduates	Nijmegen School of Management – HBO students	Nijmegen School of Management – HBO students	Nijmegen School of Management – undergraduates
Manipulation	Choice	• Choice • Responsibility for decision consequences	• Initial commitment • Decision consequences	Decision aid
Decision consequences	Negative	Negative	Negative and Positive	Negative
Information items	• Perceived future performance • Locus of causality • Stability of causes • Alternative strategies • Anecdotal information on similar companies • Correctness of the reported performances (not in experiment 1) • Correctness of the criteria used to judge the performance (only in experiment 3 and 4) • Costs: sunk vs. future			
Measurement of commitment	Behavioral commitment	• Behavioral commitment • Attitudinal commitment		
Measurement of confirmation bias	• Percentage of people requesting confirming information per experimental group per information item. • Total number of confirming items requested.			

7.1.1 Escalation of commitment and selective exposure to information

Three experiments were presented in chapters 4 and 5 to test the hypotheses regarding the effect of the (behavioral) determinants of escalation and dissonance arousal on selective exposure to information under escalation situations.

Regarding information preferences, the expectation was that factors that lead to escalation and dissonance arousal would also lead to confirmatory information search. In this dissertation, four pre-requisites for dissonance arousal were studied: choice (also a psychological determinant of escalation), responsibility for decision consequences (also a social determinant of escalation), initial commitment, and decision consequences were studied. The experimental findings showed that responsibility did not have an effect on

information search Choice and initial commitment, on the other hand, stimulated the preference for confirming information People who made the choice of the strategy requested significantly more confirming items than people on whom the strategy was imposed In the same way, people who were initially committed to the implemented strategy showed a preference for more confirming information than those who were not initially committed Given the initial choice and initial commitment, people do not only remain committed to a strategy regardless of the negative consequences but also selectively expose themselves to confirming information Hence, the first conclusion of this research is

> ***Conclusion 1:*** *Whereas responsibility for decision consequences does not lead to selective exposure to information, both choice of and initial commitment to a failing strategy lead to selective exposure to information*

These findings give support for the self-justification motives as an underlying explanation of escalation Considering that responsibility for decision consequences did not have an effect on escalation of commitment either, it seems as if choice and initial commitment play a stronger role in escalation of commitment situations than responsibility for decision consequences

Regarding selective exposure to information, it needs to be indicated that the overall tendency of people seems to be to search for disconfirming information rather than confirming Even though people who chose a strategy and were initially committed asked for more confirming information than people who did not choose and were not initially committed, overall, they requested more disconfirming items than confirming items It seems as if contrary to what is generally believed, the bias that occurs in decision-making situations is that of disconfirmation rather than confirmation[22]

> ***Conclusion 2:*** *The general tendency during information search is for disconfirming information rather than confirming*

[22] The only situation under which a clear confirmation bias existed was for committed decision-makers who received positive decision consequences

This result, however, should be considered with care In line with Festinger's (1964) reasoning, one could argue that information that is seen as useful for future decisions, e g diagnostic information, is not ignored even though it might be disconfirming Decision-makers can use such information to improve their strategy for future implementations Moreover, it has been previously suggested that a relatively little amount of information might be necessary for confirmation (Ditto and Lopez, 1992, Beyer et al , 1997) It is possible that with a little amount of confirming information, the decision-makers are able to reduce dissonance and justify their choice and commitment This reasoning, however, should be tested in future research Therefore, a tentative conclusion is proposed

> ***Tentative conclusion 1:*** *Relatively little confirming information can be enough to decrease dissonance and achieve confirmation for a strategy to which a decision-maker is committed*

While identifying the information preferences of decision-makers, various information items were used The experiments yielded consistent results These results are summarized in table 7 2 People who made the initial choice and were initially committed to the strategy wanted to report information on the likelihood for future success, superiority of the implemented strategy over the alternatives They favored anecdotal information that the strategy brought success to other companies and seemed to doubt the correctness of the reported performance For causes of the achieved performance and the costs associated with the implementation, the confirmation tendencies were not found

These results are rather intriguing The items on which confirmation was sought were all related to the (future) performance of the strategy It is possible that performance-related information can more easily be used to reduce dissonance and justify choice Regarding the dissonance reduction methods, seeking confirmation in these items can theoretically enable the decision-maker to deny the setback, exaggerate the attractiveness of the chosen alternative, and exaggerate the unattractiveness of the rejected alternative(s) Through these mechanisms, the decision-makers can reduce the dissonance aroused upon hearing negative consequences and use this information to show to him/herself and the others the expectation of success from the strategy The fact that no confirmation was sought in the category 'causes of the achieved performance' might indicate that, within the frame of this study, denying responsibility was not a preferred method of dissonance reduction This finding is again

consistent with Festinger's (1964) expectation that disconfirming information that is seen as relevant for future decisions is not ignored Indeed, diagnostic information, i e information on the causes of failure, can be used to improve the strategy before the next implementation Understanding the causes of the setback and knowing whether these causes are likely to occur again are very important aspects of sound decision-making Hence, it is plausible to think that for a committed decision-maker, confirming information on the (past and future) performance of the strategy is enough to decrease dissonance And once dissonance is reduced and choice is justified, the decision-maker would like to use the (disconfirming) diagnostic information to improve the strategy and make further implementation a success This reasoning suggests that performance information is mainly used for impression management and diagnostic information for strategy improvement It also points out to the importance of considering the content of the information while studying confirmation bias and selective exposure to information and understanding how the content of different information items contributes to confirmation and justification motives of decision-makers Given these results, the following conclusion and tentative conclusion are drawn

Conclusion 3: *Confirming information is preferred when the information is related to the past and future performance of the strategy When the information is of a diagnostic nature or related to costs, no selective exposure tendencies are found*

Tentative conclusion 2: *Confirming information related to the performance of a strategy (absolute or relative to the alternatives) is enough to decrease dissonance and achieve confirmation for a strategy to which a decision-maker is committed Disconfirming diagnostic information, on the other hand, is not avoided since it is useful for future decision-making*

Table 7.2: Summary of the results on selective exposure to information under escalation conditions.

Information item		Experiment 1	Experiment 2	Experiment 3	Overall conclusions
Future performance		**No support**	**Marginal support**	**Support**	**Initial commitment leads to a preference for information indicating future success. Choice and responsibility lead to marginal preference for such confirming information.**
Factors that contributed to the performance of strategy	Locus of causality. Internal vs. External	Marginal support	No support	No support	Regardless of their choice, responsibility or initial commitments, the preference of individuals goes for information that indicates that the causes for the achieved performance are internal.
	Stability of causes. Temporary vs. Permanent	No support	No support	No Support	The overall preference of individuals goes for information indicating permanent causes. However, when the commitment level and the performance results are inconsistent then this preference disappears and it becomes equally likely for individuals to choose permanent or temporary causes.
Alternative strategies		**Support**	**Marginal support**	**Support**	**Choice and initial commitment lead to preference for information that indicates that the implemented strategy is better than alternative strategies.**
Anecdotal information on similar companies		**Support**	**Marginal support**	**Support**	**Choice and initial commitment lead to preference for information that indicates that similar companies had success with the same strategy.**
Correctness of the actual performance	Correctness of the actual performance	NA	No Support	Marginal support	Overall, people prefer to report that the reported performance is accurate. As a second preference however, initial commitment induces search for information that indicates that actual performance is better than reported.
	Correctness of the evaluation criteria	NA	NA	No support	People prefer to report that the criteria used for judging the performance are accurate.
Costs associated with implementing the strategy		No support	Marginal support	No support	The overall preference of individuals goes for information on future costs required However, more of the subjects who made the initial choice search for sunk cost information.
Total amount of confirming information selected		**Support**	**Support**	**Support**	**Choice and initial commitment lead to search for more confirming information.**

7.1.2 System dynamics as a de-escalation tool

The second goal of this research was to test System Dynamics modeling as a tool that could enable de-escalation and decrease selective exposure tendencies The effectiveness of receiving a causal loop diagram (CLD) was compared to two situations receiving no decision aid and receiving a list of factors

When compared to the people who did not receive any decision aid, the escalation effect was significantly decreased in subjects receiving a CLD Those who received a CLD invested less money and indicated feeling less committed to the failing strategy People who received a list did not show any significant differences from the people who did not receive a decision aid The same results applied to change in commitment levels People receiving a CLD decreased their commitment significantly more than those who did not receive any decision aid whereas this significant difference did not exist for people who received a list Receiving a CLD also decreased the selective exposure tendencies As compared to people without a decision aid, less of the people receiving a CLD denied the existence of negative feedback and showed less preference for confirming information indicating future success of the strategy and its superiority over the alternatives

Conclusion 4: *Using a causal loop diagram stimulates de-escalation*

Conclusion 5: *Using a causal loop diagram stimulates a decrease in selective exposure tendencies in information items related to the (future) performance of the course of action*

Why was using a CLD effective? Given that a list of variables did not generate de-escalation and a decrease in confirmatory information search, the effectiveness of a CLD can be attributed to the explicitness of the system structure, namely, the relationships amongst variables and the feedback loops Knowledge on the system structure may have enabled a decrease in escalation and selective exposure tendencies in one of the following ways First, being aware of the system structure and effects of various factors on one another might have facilitated the objective analysis of the strategy possible This might have given the subjects the opportunity to formalize their reasoning process and hence, stimulate better understanding

of the situation Second, the analysis of the relationships might have generated insight into factors such as the causes of failure, possible reactions from the competitors, customers etc Third, focus on the feedback loops might have prompted the subjects to the dynamic implications, that is, consequences, of re-investment

The reader may have realized that the three possible effects of CLDs offered are given in the order of increasing cognitive complexity While the first one is the least complex one, the last one requires the highest amount of cognitive analysis Given the time limitations, it would be more probable to attribute the observed effectiveness of the CLDs mainly to being aware of the relationships and to a lesser extent, to the insight generated from the analysis of these relationships Yet, given that the way the subjects used the CLD and whether they analyzed it (appropriately) were not measured, no conclusive answer can be given to the question why CLDs were effective

7.1.3 A new measure of commitment and escalation

Even though it was not one of the main goals of this research, this study also has a contribution regarding the operationalization of (escalation of) commitment In the escalation research, commitment has been operationalized as the amount of money invested to a failing course of action In this research, a new measure of commitment and escalation were developed To measure commitment, alongside money invested, which measures (stated) behavioral commitment, felt commitment was measured as a proxy for (stated) attitudinal commitment To do so, a 5-item scale was developed (see chapter 4, experiment 2) To measure escalation, the change in commitment, calculated as the difference between commitment levels before and after the feedback with decision consequences, was used Table 7 3 summarizes the results on the effects of choice, responsibility, and initial commitment on both operationalizations of escalation of commitment

Regarding attitudinal versus behavioral commitment, it is interesting to see that choice affects the initial attitudinal commitment level but not the behavioral commitment level People who do not make the choice of the implemented strategy invest as much money as those who make the initial choice However, at the same time, they indicate feeling much less committed than those who make the choice Thus, those who do not choose the strategy invest money even though they do not feel committed Consecutively, upon receiving

negative decision consequences, they decrease their commitment much more than those who make the initial choice. This indicates that while those who initially choose have a consistency between their behavior and attitude, those who do not make the initial choice lack this consistency. They initially show a high behavioral commitment that is not consistent with their attitudinal commitment towards the action. As a result, at the first sign of negative consequences, they pull the plug immediately. These results lead to the following conclusion:

> ***Conclusion 6:*** *Two different operationalizations of commitment, namely money invested and felt-commitment, give different results. Therefore, to understand escalation situations better, measures for both behavioral and attitudinal commitment might be necessary.*

Table 7.3: Summary of the results on (escalation of) commitment.

Independent Variable	Expectation		Experiment 1	Experiment 2	Experiment 3
Choice	Choice leads to initial commitment	Money invested	No support	No support	NA
		Felt-commitment	**Support**	**Support**	
	Choice leads to escalation of commitment (i.e., higher final commitment)	Not controlling for initial commitment	**Support**	**Support**	NA
		Controlling for initial commitment	**Support**	**Support**	
	Choice leads to increase (or less decrease) in commitment	Money invested	**Support**	**Support**	NA
		Felt-commitment	**Support**	No Support	
Responsibility for decision consequences	Responsibility leads to initial commitment		NA	No Support	NA
	Responsibility leads to escalation of commitment (i.e., higher final commitment)		NA	No Support	NA
	Responsibility leads to increase (or less decrease) in commitment		NA	No Support	NA
Initial commitment	Initial commitment leads to escalation of commitment (i.e., higher final commitment)	Not controlling initial commitment	NA	NA	**Support**
		Controlling for initial commitment			**Support**
	Initial commitment leads to increase (or less decrease) in commitment	Money invested	NA	NA	No Support
		Felt-commitment			No Support

Previous research focused on the fact that responsibility for the choice of a course of action can induce (irrational) escalation behavior and decision-makers should be aware of this While the results of this research concur with this accepted wisdom, they also emphasize the other side of the story As explained above, not being responsible for the choice of a course of action can cause the exhibition of a seemingly committed behavior pattern and at the same time, lead to early withdrawal due to the lack of initial felt-commitment Like escalation, early withdrawal can also be a disruptive behavior pattern for the success of an organization Thus, reasons for withdrawal should also be monitored closely

Another issue that was considered in this thesis was the definition of escalation Is a one-time measure of commitment enough to understand escalation situations or should one look at the change in commitment? In this thesis, both the final commitment level and the change in the commitment level were measured The expectation was that for escalation to occur there should be either an increase or at least, a smaller decrease in commitment The effect of choosing the implemented strategy was consistent with this expectation whereas the effect of initial commitment was not Upon receiving negative consequences, the initially-committed subjects decreased their commitment level more than the initially-not-committed subjects However, given the higher level of initial commitment, the final commitment level of the initially-committed subjects was still higher than the initially-not-committed subjects This means that the final commitment level, on its own, indicates an escalation bias whereas the amount of change in commitment does not

> ***Conclusion 7:*** *Measuring escalation of commitment as change in commitment rather than commitment after performance feedback gives a different result regarding escalation of commitment Therefore, to understand escalation situations better, measures for both final commitment and change in commitment might be necessary*

Further analysis of the change in commitment levels gave rise to an interesting tentative conclusion It turns out that the adjustments people make to their initial commitment levels are not enough to reflect the performance of the strategy they are implementing That is, initially-committed people do not decrease their commitment enough upon receiving negative consequences while initially-not-committed people do not increase their commitment enough upon receiving positive consequences This pattern of behavior seems to be consistent with

the well-known anchoring-and-adjustment heuristic which may explain why people do not adjust their commitments in accordance with the performance outcomes and escalate This finding leads to the following tentative conclusion

> ***Tentative conclusion 3:*** *The adjustments made to the initial commitment levels after the decision consequences are not proportional with the nature of the consequences These insufficient adjustments can be explained using the anchoring and adjustment heuristic*

To understand why decision-makers show escalation of commitment to losing courses of action, the participants were asked to rate various reasons for their escalating commitment The results showed that as the final commitment level increased so did the feeling of not having invested enough initially, the will to show the correctness of initial decision and the optimism with which the consequences were perceived At the same time, increased commitment was associated with decreased intention to save money for alternatives Likewise, choosing the implemented strategy stimulated reasons such as the will to show the correctness of the initial decision and decreased intention to save money for alternatives Being held responsibility for the decision consequences, on the other hand, stimulated reasons such as saving reputation as a consistent decision-maker and a will to collect additional data (through reinvesting) to understand the strategy's effects better Overall, even though not all the reasons indicated were of an irrational nature, making the initial choice, being responsible for decision consequences, and escalating in commitment were associated with less rational reasons, such as face-saving Moreover, by judging the decision consequences as not negative, people who chose the implemented strategy show a tendency for biasing an objective information item, a tendency that supports conclusions 1 and 3 Based on these results, the following conclusion can be derived

> ***Conclusion 8:*** *Choice responsibility and final commitment levels of decision makers are associated with higher likelihood of using irrational reasons for explaining commitment to a failing course of action*

Based on the experimental findings, eight conclusions and three tentative conclusions were derived In the next sections, implications of these findings as well as limitations of this research will be discussed

7.2 Theoretical contributions and implications for practice

7.2.1 Theoretical contributions

This research has three main theoretical contributions The first one relates to the occurrence of selective exposure in escalation situations, the second one to the use of a modeling technique for de-escalation, and the third one to the measurement of (escalation of) commitment in escalation research

The most important finding of this research is showing that antecedents of escalation stimulate selective exposure to information This finding has five implications for research

First, this finding can be seen as another test of the self-justification explanation of escalation As explained previously, the self-justification explanation is based on dissonance theory If dissonance mechanisms were at work in escalation situations then one would expect committed decision-makers to decrease dissonance once faced with negative decision consequences, for instance, by selectively exposing themselves to information as predicted by dissonance theory This research, by showing that selective exposure to information occurs under escalation situations, gives further support to the self-justification motives as an underlying cause of escalation

Second, the findings present support for the aggregate model of escalation as proposed by Staw (1997) In that model (see figure 2 2), Staw presented three relationships i the effect of behavioral factors on escalation, ii the effect of project factors on escalation, and iii the effect of behavioral factors on the perception of the project factors Prior escalation research has already provided empirical support for the first and second effects The third one, however, had not yet been researched By showing that choice (as a psychological factor) affects the perception of the project factors, this research gives support for this aggregate model

Third, this research shows that information processing biases are not only a cause of escalation but also one of its consequences

A fourth theoretical implication of this research is showing the fruitfulness of studying the link amongst different biases or the co-occurrence of biases Recently other researchers showed the link between biases (Keil et al , 2007, Fischer et al, in press) This dissertation should be seen as contributing to this line of research by showing i confirmatory information search and escalation of commitment biases co-exist and ii the anchoring and adjustment heuristic seems to explain changes in commitment levels in escalation situations The finding

related to anchoring and adjustment shows that yet another behavioral factor might need to be added to the list of determinants of escalation

The fifth implication relates to mechanisms for dissonance reduction The results indicate for dissonance reduction, some information items (e g performance-related information) might be preferred over others (e g diagnostic information) and at the same time, some dissonance reduction mechanisms (e g denying setback or exaggerating the attractiveness of the chosen alternative) might be preferred over others (e g responsibility denial) The results of this research show the necessity for further research into dissonance reduction

The second main contribution is to the research on de-escalation of commitment Prior research on de-escalation had not focused on techniques that can improve the quality of decision-making and hence, have a de-escalation effect This research introduced the first test of such a technique, causal loop diagramming and showed that it does not only lead to de escalation but also decreases selective exposure tendencies This shows the usefulness of decision-support tools such as causal loop diagramming for enabling de-escalation of commitment

Finally, the third main contribution relates to the operationalization of commitment and escalation of commitment This research showed that studying both attitudinal commitment (alongside behavioral commitment) and change in commitment could add to our understanding of escalation situations

7.2.2 Implications for practice

Given the findings of this research, managers should be mindful about the information biasing tendencies, especially under escalation situations In particular, managers should be careful about how they use performance information and check whether any information is left out of consideration Given the fact that the performance of a course of action can be measured in various ways, organizations should focus on establishing accurate and objective ways of measuring performance Moreover, objective criteria for estimating future performance and generating and evaluating alternative courses of action are very important in avoiding biased information use

Like escalation situations, early withdrawal from a course of action is an issue to which organizations should pay attention Especially, in those situations in which the higher management or board of directors requires a certain course of action to be implemented, a manager responsible for the implementation (but not the development of the action) could pull the plug too soon at the early signs of negative feedback

In order to prevent cases of escalation or premature withdrawal, organizations should monitor re-investment and withdrawal decisions of managers closely and understand the reasons for these decisions Being aware of different cognitive biases that can cause escalation or withdrawal for the wrong reasons and implementing safeguards against such effects could help organizations save money and time In both cases, decoupling action development and choice stages from action evaluation might be a good idea (also suggested by Boulding et al, 1997, Keil and Robey, 1999) Assigning the information processing and action-evaluation responsibilities to someone who is impartial to the implemented strategy could help eliminate information biasing, irrational escalation or early withdrawal

Last but not the least, the findings from this research shows the importance of thorough decision-making for organizations Establishing decision-making techniques that help evaluate the implemented strategies and stimulate understanding of both intended and unintended consequences of these strategies would improve the quality of decisions made and decrease the possibility of both escalation and premature withdrawal

One such technique that was introduced and tested in this research is one that organizations could benefit from causal loop diagramming Through modeling techniques, decision-makers would have the opportunity to formalize hidden assumptions and question inconsistencies in their mental models and their reasoning processes Formalized simulation methods could help decision-makers understand what the intended and unintended consequences of a strategy are, why a strategy is failing (or succeeding), and what the causes for the experienced performance are Moreover, these models can be used to identify possible alternative courses of actions and their implications By providing a safe environment in which various strategies or scenarios can be tried out prior to selection and implementation, such formalized techniques can contribute to increasing the quality of decision-making

7.3 Limitations

The most important limitation of this research is related to the generalizability of the findings. External validity of laboratory experiments using students poses a threat to generalizability. There are two issues here. The first one is the use of laboratory experiments. It can be argued that an experimental setting does not enable the creation of a real-world decision-making situation. Not all the relevant elements of decision-making situations in organizations can indeed be replicated in an experiment. Yet, this weakness gives the researcher the opportunity to study the main factors of interest in a more controlled setting. Nevertheless, study of selective exposure in the field through case studies could yield additional insights. The second issue regarding the generalizability is the use of students as surrogates for managers. As discussed in chapter 3, use of students instead of managers poses a danger for external validity. However, there is evidence showing that students and managers make similar decisions (e.g. Ashton and Kramer, 1980; Mowen and Mowen, 1986; Yavas, 1994). Moreover, while developing the cases, care was taken to choose topics in which students could make sound judgments. Yet, while generalizing the results of this research these limitations should be taken into consideration and replication of the findings using managers would be desirable.

In terms of operationalization, two issues can be identified as potential limitations. First, while measuring the information preference, the subjects were not given the real information items. That is, they were not presented with the content of the information but just a sentence explaining the content. If more detailed information content was given, the real-life information selection processes would have been replicated more truly. Moreover, the subjects were not asked to write the reports but just indicate the information they would like to use. If they were actually made to write a report, the information preference and use could have been measured more directly. Second, while measuring commitment, reported behavior was used rather than actual behavior. The same applies to the attitudinal commitment. The subjects were asked to indicate how committed they felt. It can be argued that reported behavior or attitude may not be the same as the actual behavior or attitude. However, given that the cases involved large sums of money, it would have been difficult to use actual money such as in entrapment research. It could have been possible to use simulation games where

people are more involved in a continuous decision-making situation Use of simulation games in escalation research would be an interesting line of future research

7.4 Future research

In the summary and conclusions section, three tentative conclusions were presented for future research In this section, some other possible interesting future research directions will be named These will be grouped into three main topics selective exposure to information, escalation of commitment, and use of System Dynamics for de-escalation

Selective exposure to information: In this research, the information preference of decision-makers was measured The assumption was that information would exist in various forms and decision-makers can choose either confirming or disconfirming information depending on their preference Future research should focus more on the role of information in dissonance reduction Questions such as 'which information items are preferred confirmation sources under which conditions' and ' are some dissonance-reduction mechanisms preferred over others' should be researched It would also be interesting to investigate whether (and under which circumstances) confirmatory information search is an intentional, deliberate process

Another, but related, issue that should be considered in future research is whether decision-makers actively generate confirming information through changing or biasing the available information or even through creating new, at times, incorrect, information It would be interesting to research to what extent creation of confirming information or purposeful use of incorrect, but confirming, information occurs in decision-making situations In case decision-makers do engage in such information manipulation, it would be important to understand their reasons and develop strategies to disable such processes

Escalation of commitment: The co-existence of cognitive biases seems to be an interesting research direction In this thesis, selective exposure to information was shown to co-exist with escalation bias and the possible effects of the anchoring and adjustment heuristic was proposed Prior research also showed the existence of framing effects under escalation conditions Understanding how different cognitive biases stimulate or trigger one another would be important for learning more about how people make decisions

Studying the effects of different cultures on escalation would be interesting as well Most of the work on escalation has been done in the US This dissertation used a Dutch sample and showed consistent results with previous research In one of the experiments, however, a group of Chinese subjects joined the study Analysis showed that contrary to the Dutch subjects, choice did not affect the commitment level of the Chinese subjects Whether they chose the strategy themselves or it was imposed on them did not make any difference for commitment, they all had high commitment levels Given that the current study was not designed to consider such cultural differences, this finding should only be seen as an indication of cultural effects on escalation Future research could study cultural influences

Most research in escalation targeted individual and static decision-making Studying escalation tendencies of groups (e g Whyte, 1993, Rutledge, 1995) as well as escalation in dynamic decision tasks would be very interesting future lines of research For instance, simulation games could be used to generate dynamic task environments in which subjects make decisions

Use of System Dynamics: A final set of future research directions are related to the use of System Dynamics as a de-escalation tool Further research needs to be done to understand what feature of the causal loop diagrams (CLD) stimulates de-escalation For instance, the contribution of feedback loops and their analysis should be better understood Moreover, it should be studied whether building the model rather than being presented with the ready model increases the benefits of using a CLD

The System Dynamics approach provides much more than causal modeling The essence of the approach is in its use of quantitative dynamic simulation models based on feedback thinking Even though CLDs are useful in representing the feedback structure, they are inadequate for understanding the dynamic implications of actions (Sterman, 2000) In order to see the full effect of System Dynamics in de-escalation, the effectiveness of formal models should be tested[23]

In line with the recommendation to carry escalation research to the group level, studying the use of System Dynamics in enabling de-escalation in groups could be an interesting direction for future research It is generally advised to go through the model

[23] It should also be realized that building a valid quantitative System Dynamics model is a very time consuming process Understanding and analyzing the model requires expert knowledge that may not be available at the time of a pressing decision This should be one of the factors that is taken into account while testing the effectiveness of formal models as a de escalation technique

building process with a group of decision-makers each of whom might possess different relevant knowledge about the problem The so-called group model building (GMB) process can help decision-makers share their mental models with one another and help generate consensus and commitment to the decisions taken (Vennix, 1996, Rouwette, 2003) A potential advantage of such a process for escalation situation is that if the decision-makers and the evaluators of the results would go through the model building process together this could increase the shared understanding and hence, decrease the justification needs of the decision-makers Testing the effectiveness of a GMB study (qualitative and/or quantitative) in decreasing the escalation of individuals functioning within a group or the escalation at the group level could be very rewarding to research on de-escalation

Similar recommendations as above apply to understanding more about the use of System Dynamics in decreasing confirmation tendencies Future studies should try to understand what exactly makes CLDs useful for such de-biasing and examine whether going through the modeling process or using a quantitative model instead of a CLD are more effective For instance, Pala et al (2004) developed an extensive procedure for using causal loop diagrams to help decision-makers identify the relevant information cues in their environment Future research could focus on developing such procedures and testing whether they can be useful in overcoming selective perception tendencies

7.5 Final words

The study presented in this dissertation contributes to the research on escalation of commitment in three ways i by studying selective exposure to information under escalation situation, ii by proposing and testing a new measure of commitment and escalation, and iii by proposing and testing causal loop modeling as a de-escalation technique The academic interest to this domain had grown over the years, yet many questions remain unexplored Hopefully, this dissertation can inspire additional research in the areas of selective exposure and (de-)escalation of commitment

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APPENDIX I

Case description and questions used in experiment one

AI.I General Instructions

The company you will be analyzing is a British restaurant chain, named Beefeater You will first need to read a description of this company, its market, customers, and competitors Consecutively, you will read information on the strategy the Beefeater will follow over the coming 5 years and your role within the company ***It is very important that you get into this role and answer the questions as the manager of this restaurant chain.***

There are altogether 3 stages of questions you will need to answer You have already received the first of these This stage includes the case description, description of the strategy, and your role as well as questions you need to answer to evaluate the strategy as the manager of Beefeater Please let the experimenter know when you are finished with this stage so that you can receive the questions in the second stage

If you have any questions at any point in time please do not hesitate to ask them to the experimenter

AI.II Case Description

Beefeater Restaurants

Background

Beefeater restaurants is the name of a steak house chain in the retail services portfolio of Whitbread PLC, that owns other known chains such as Pizza Hut, TGI Fridays Marriott Hotels

English steak houses can be traced back to the early 1960s The concept was simple The menu offered just a few different steaks, with one fish and one chicken alternative To start, there was prawn cocktail, soup, pate or fruit-juice The main meal price included only ice-cream or cheese to follow The wine list was short and to keep tables busy both pre-dinner drinks and after-dinner coffees were served in the bar

In the 1970s, the declining beer sales in pubs alerted the attention of brewers (who in England, own their own pubs) to the fact that drink sales were not the only potential source of retail profit – food might offer additional income too Amongst the first firms to identify the emerging opportunity was Whitbread PLC, until 1980 the fourth largest brewer The company produced and marketed a full range of beer products, both its own brands of ale and licensed international brands of lager, such as Heineken and Stella Artois

Amongst Whitbread's initiative was the Beefeater steak-house concept This picked the best principles from existing steak-houses – the short menu and wine list, the inclusive prices, the friendly service – but added three further features First, with consumers being increasingly mobile, attractive, prominent, out-of-town pubs were chosen Whitbread had many such sites Second, steak-house designs were dreary and uninteresting An exciting new design style was adopted, creating intimate areas in the shell of the building, with steps and corners making an interesting atmosphere Lastly, the bars in existing steak-houses were out-dated and dominated by the restaurant operation A traditional pub style was used instead, welcoming to drinkers who were not using the restaurant This not only added interest, but also improved the overall economics of the sites

The first Beefeater opened in 1976 from a large suburban pub and its immediate success set a frantic pace By 1979, there were 30 steak-houses around Whitbread's regional companies and in 1981, all were transferred to the Beefeater team It was estimated that up to 120 existing pubs would meet the demanding Beefeater criteria Beefeater continued to grow, and by February 1983 operated 115 units

The UK Eating Out Market – Customer profile

Beefeater benefited greatly from the early 1980s growth in UK eating out demand The increasing consumer affluence, greater mobility, and a wish to eat out in groups and families boosted restaurant demand considerably Beefeater's core users were in upper-middle socio-economic groups, most having families and owning their own houses Friday and Saturday evenings were the most popular for eating out Restaurants were much quieter on midweek evenings, lunch-times, and Sundays, with some sites barely able to justify opening at all Couples took a quarter of the meals sold Families were another important group, at about 20% The rest consisted of single-sex groups and individuals, usually business people having lunch during the week Although Beefeater knew its customer profile and trade pattern quite well, there was some dissatisfaction with the simplistic segmentation The weekly trade pattern seemed to offer unexploited potential, though how this potential could be taken was not clear

Restaurant Competition

The first ever steak-house, Berni, lost its leadership in the market in the early 1980s Consumers believed service and value to be at least as high as Beefeater's in spite of objective measures suggesting that quality, service, and restaurant environment were falling below public expectations A bigger threat came from a new competitor, Harvester, which continued to grow strongly Most worrying for Beefeater was Harvester's unit sales performance Not only did Harvester have larger sites, located in high-spending areas, but also promoted its restaurant heavily with 2-for-1 meal offers, early-dinner promotions and discounting Other rivals continued to grow their businesses, seduced by the success of Beefeater Many brewers invested heavily in catering operations that encroached on Beefeater's segment

The restaurant

The restaurant operating procedures were designed with simplicity in mind Labor was a key cost item A key task for the manager was balancing demands to keep down his labor cost percent against demands for good service Whilst labor cost could be cut easily in the short tem, disappointing service discouraged customers from returning many weeks in the future

A busy restaurant soon fell into despair, and a key part of the annual discretionary budget was dedicated to maintenance At the same time, sites were often redeveloped to extend their trading area or redesign the interior Unfortunately, as the number of Beefeaters and imitators grew, and as pub standard generally improved, consumers' expectations tended to increase as well

Support functions

Beefeater head office departments covered marketing, product development, finance personnel, design, and purchasing Marketing dealt with regular promotions Marketing heavily influenced restaurant design and menu changes, working with product development

Changing menus and pricing was time-consuming, but changes had to be made to keep ahead of rivals and to meet rising consumer expectations Prices were high compared with other pubs in the area

Beefeater was cautious about using TV advertising, wondering how to promote a branded chain concept without losing each site's local appeal The main competitors, though, advertised heavily on TV, but were believed to have gained little sustainable business form this spending

The main human resource challenge was to recruit, keep and train large numbers of restaurant managers as well as help restaurants to find and train staff

Procurement was central to Beefeater's profit performance Consumers were taking food quality as a given, rather than a motivating factor, so consistent high quality was crucial

Sites

The initial expansion of Beefeater was through converting Whitbread-owned sites However, as time passed, there were fewer quality sites to be used and Whitbread had no sites at all in important parts of the country Beefeater had to look outside the Company for growth Even old industrial buildings and water mills were converted Such developments, however, came at high costs In 1980s, a £40,000 pub improvement was thought extravagant by Whitbread Yet, Beefeater's development costs were up to £400,000 by the end of 1980s

This problem of capital cost was made worse by the later need for refurbishment This led to concern over the financial performance of Beefeater as a whole Over the 1990s, as the level of capital expenditure needed to construct each restaurant was high and rising whereas the average sales per unit were apparently falling in real terms

AI.III Choice manipulation

Choice group

You have been managing the business of Beefeater for several years and you have done a good job Restaurant numbers, sales, and profit have remained strong and you have continuously assured that consumers are happy enough with the value that your restaurants offer Your team earned regular bonuses during the past

However, lately, the business has proved more challenging A new competitor recently started up and seems to be developing quickly They are opening restaurants quickly and are heading towards overtaking the market lead from you within the next year The restaurant sector, in general, is also becoming more competitive, especially with widespread discounting in meal prices Moreover, the country once again went into recession, consumer incomes fell back, and eating out expenditures declined

Your task is to invest in the future strategy of Beefeater in order to repel the competitive threats and sustain a lead in the market, while continuing to deliver growth and financial performance The headquarters have made 5 million pounds (£ 5,000,000) available for the next 5 years, at the end of which there will be an evaluation of the performance of Beefeater

As the manager, it is your task to choose and implement a strategy Given the current market situation, you would like to choose one of the following two strategies to implement
Strategy A: You can choose a strategy that invests specifically in service quality and targets high-income groups Choosing this strategy, you would put emphasis on

- Growth by opening restaurants in *high-income areas only* while closing down smaller, non-profitable restaurants, especially those in low-income areas
- High quality by investing specifically in *service* and *menu appeal*
- Keeping the prices at their current level *slightly above* those of the competitors

Strategy B: You can choose a strategy that targets the general population and focuses on the market pressures Choosing this strategy, you would put emphasis on

- Growth by acquiring new restaurants while closing down smaller restaurants that are not profitable
- High quality by investing specifically in *restaurant environment*
- Responding to competitive pressures by following the competitors in discounting so that the prices would at the *same level or slightly less* than those of the competitors

No-choice group, strategy A

You are taking over the management of the business of Beefeater after the unexpected early departure of the previous managing director The previous director made sure that restaurant numbers, sales, and profit have remained strong and he has continuously assured that consumers are happy enough with the value that your restaurants offer You have been informed that the managing team, under the previous manager, earned regular bonuses during the past

However, lately, the business has proved more challenging A new competitor recently started up and seems to be developing quickly They are opening restaurants quickly and are

heading towards overtaking you within the next year The restaurant sector, in general, is also becoming more competitive, especially with widespread discounting in meal prices Moreover, the country once again went into recession, consumer incomes fell back and eating out expenditures declined

Your task is to invest in the future strategy of Beefeater in order to repel the competitive threats and sustain a lead in the market, while continuing to deliver growth and financial performance The headquarters have made 5 million pounds (£ 5,000 000) available for the next 5 years, at the end of which there will be an evaluation of the performance of Beefeater

Although it is your task to invest in the future strategy, the headquarters imposed on you the strategy they want implemented They want you to follow a strategy that invests specifically in service quality and targets high-income groups They would like you to keep on emphasizing growth by acquiring new restaurants However, now they want you to focus on opening restaurants only in high-income areas while closing down smaller, non-profitable restaurants, especially those in low-income areas In the meanwhile, they want you to keep high quality by investing specifically in service and menu appeal while keeping the prices at their current level slightly above those of the competitors

No-choice group, strategy B

You are taking over the management of the business of Beefeater after the unexpected early departure of the previous managing director The previous director made sure that restaurant numbers, sales, and profit have remained strong and he has continuously assured that consumers are happy enough with the value that your restaurants offer You have been informed that the managing team, under the previous manager earned regular bonuses during the past

However, lately, the business has proved more challenging A new competitor recently started up and seems to be developing quickly They are opening restaurants quickly and are heading towards overtaking you within the next year The restaurant sector in general, is also becoming more competitive, especially with widespread discounting in meal prices Moreover, the country once again went into recession, consumer incomes fell back and eating out expenditures declined

Your task is to invest in the future strategy of Beefeater in order to repel the competitive threats and sustain a lead in the market, while continuing to deliver growth and financial performance The headquarters have made 5 million pounds (£ 5,000,000) available for the next 5 years, at the end of which there will be an evaluation of the performance of Beefeater

Although it is your task to invest in the future strategy, the headquarters imposed on you the strategy they want implemented They want you to follow a strategy that targets the general population and focuses on the market pressures They would like you to keep on emphasizing growth by acquiring new restaurants However, now, they want you to close down smaller, non-profitable restaurants In the meanwhile, they want you to keep high quality by investing specifically in restaurant environment They would also like you to respond to competitive pressures by following the competitors in discounting so that the prices of Beefeater would be at the same level or slightly less than those of the competitors

AI.IV Measurement of initial commitment

A. Below, there are questions regarding the strategy of Beefeater. Based on the information you read and the case description, please answer the following questions. We are interested in your opinion as the manager of Beefeater.

1) Which of the two strategies would you choose? Please circle the alternative that you choose:

A) Strategy A

B) Strategy B

2) Over the coming 5 years, how much of the total funds (£ 5,000,000) would you be willing to spend on the strategy you have chosen?

_____Pounds

AI.V Decision consequences

B. Below, you will find information on the performance of Beefeater's strategy over the past five-year period. After reading it, please answer the questions on the next pages as the manager of Beefeater.
At the end of the 5 years, your performance has been evaluated to see how well the strategy served in meeting the targets of Beefeater· repel the competitive threats and sustain a lead in the market, while continuing to deliver growth and financial performance. The following contains a summary of the performance measures of Beefeater.

Over the last five years, the overall profit of Beefeater has been below the target of the headquarters. Hence, you have been receiving continuous warnings from the headquarters.

The number of Beefeater restaurants has been increasing. However, the growth has been very slow. Some of the inefficient restaurants were closed down but this process has not been very effective due to two main reasons. Firstly, the managers and the workers of these sites as well as the labor unions have been opposing the idea very fiercely. Secondly, it was not clear how to divert the customers of these sites to other Beefeater restaurants without losing them to the competitors. As a result, closing of restaurants has been very slow

Just like the number of Beefeater restaurants, the number of the competitor restaurants has also been increasing. The competitor has been growing at a dangerous pace over the five years and coming closer to Beefeater in terms of the number of customers. Beefeater could not overcome the danger of losing the lead in the market and moreover, it seems like, over the coming year, the competitor is going to take over the market lead from Beefeater.

It is not only the number of restaurants of the competitor that alarm the headquarters but also the reported customers' perception of value. Market research shows that over the 5 years, the customers' perception of different quality measures has decreased whereas the customers' perception of competitor's quality has been increasing. This fact coupled with the continuously declining number of meals served per restaurant leads to warnings from the headquarters.

All in all, Beefeater could not fulfill the targets set five years ago Headquarters are willing to authorize another 5 million pounds (£ 5,000,000) but they would first like you to explain how you would spend this money

AI.VI Measurement of final commitment

C. Given the information you have just read, please answer the following questions regarding the strategy that was implemented over the last 5 years as the manager of Beefeater

1) If new funds in the amount of 5 million pounds (£ 5,000,000) were made available now, how much of these funds would you be willing to spend on the *continuation of the implementation of the strategy that was implemented 5 years ago*?

_____Pounds

AI.VII Measurement of information preference

D.1. In part C, you made a decision regarding whether you will keep on supporting the strategy of Beefeater over the coming period That is, you indicated how much of the funds you will use for continuing to implement the strategy that was implemented 5 years ago In order to support your decision, you need to write a report to the headquarters To write your report, you have the opportunity of requesting further information A consulting firm in which you trust will gather this information for you They have done excellent jobs for you in the past

There are a total of 6 information categories you could get information on The consultancy firm will gather the information, do the necessary research, and present you with a report per information category Hence, you will receive a total of 6 reports, which you can use to defend the decision you have made in part C

However, due to time and monetary constraints, you cannot ask the firm to gather all the information you would like to have Hence, within each information category, you need to make a choice for the type of information you would like to request To enable this, the consulting company provided you with two possible reports for each information category They would like you to choose the report you would like to receive most Below, for each information category, you are given two questions In the first question, we would like you to choose the report you prefer In the second question, we would like you to state how much you prefer this report

Report 1:

Which of the following reports would you like to receive? Please indicate your choice by circling the letter corresponding to the report of your choice

a) A report that estimates the likelihood that the further implementation of this strategy will bring success to the company and explains the reasons for this possible success

b) A report that estimates the likelihood that the further implementation of this strategy will bring failure to the company and explains the reasons for this possible failure

Report 2:

Which of the following reports would you like to receive? Please indicate your choice by circling the letter corresponding to the report of your choice

a) A report that focuses on linking the failure of the strategy to factors that were part of the strategy itself and hence, were under your control

b) A report that focuses on linking the failure of the strategy to environmental factors and hence, were out of your control

Report 3:

Which of the following reports would you like to receive? Please indicate your choice by circling the letter corresponding to the report of your choice

a) A report that calculates the total amount of money invested in this strategy so far

b) A report that calculates the required future costs in case this strategy is continued

Report 4:

Which of the following reports would you like to receive? Please indicate your choice by circling the letter corresponding to the report of your choice

a) A report that lists possible alternative strategies and explains why these are better than this strategy

b) A report that lists the advantages of this strategy over other possible alternative strategies and explains why this strategy is better than the others

Report 5:

Which of the following reports would you like to receive? Please indicate your choice by circling the letter corresponding to the report of your choice

a) A report that outlines those causes of the setback that were temporary and are not likely to occur again in the future

b) A report that outlines those causes of the setback that are likely to occur again in the future

Report 6:

Which of the following reports would you like to receive? Please indicate your choice by circling the letter corresponding to the report of your choice

a) A report that gives an overview of similar companies where the implementation of the same strategy brought success to the company

b) A report that gives an overview of similar companies where the implementation of the same strategy brought failure to the company

APPENDIX II

Case description and questions used in experiment two

AII.I General Instructions

The company you will be analyzing is a British restaurant chain, named Beefeater You will first read a description of this company, its market, customers, and competitors Consecutively, you will read information on your role within Beefeater ***It is very important that you get into this role and answer the questions as the managing director of this restaurant chain.***

There are altogether 3 stages, each stage having its own set of questions These sets of questions are to your right upside down in the correct order It is very important that you finish working on one stage before you move onto the next one So please DO NOT LOOK AT THE NEXT SET OF QUESTIONS BEFORE YOU FINISH WORKING ON THE CURRENT SET It is also very important that once you move onto the next stage, you do not go back and re-work on the previous stages When you are finished with one stage, please first put the set of questions belonging to this stage to your left and then take the questions of the next stage and start working on them

You can now take the first set of questions This set includes the case description, information on your role and the strategy of the company, and the questions you need to answer to evaluate the strategy as the managing director of Beefeater

If you have any questions at any point in time please do not hesitate to ask them to the experimenter Thank you

AII.II Case Description

Beefeater Restaurants

Beefeater restaurants is the name of a steak-house chain in the retail services portfolio of Whitbread PLC, that owns other known chains such as Pizza Hut, TGI Friday's, Marriott Hotels

In the 1970s, the declining beer sales in pubs alerted the attention of brewers (who, in England, own their own pubs) to the fact that drink sales were not the only potential source of retail profit – food might offer additional income too Amongst the first firms to identify the emerging opportunity was Whitbread PLC, until 1980 the fourth largest brewer The company produced and marketed a full range of beer products, both its own brands of ale and licensed international brands of lager, such as Heineken and Stella Artois

Amongst Whitbread's initiative was the Beefeater steak-house concept This picked the best principles from existing steak-houses – the short menu and wine list, the all-inclusive prices, the friendly service – but added three further features First, with consumers being increasingly mobile, attractive out-of-town pubs were chosen Second, an exciting new design style was adopted, creating intimate areas in the shell of the building, with steps and corners making an interesting atmosphere Lastly, the bars in existing steak-houses were out-dated A traditional pub style was used instead, welcoming to drinkers who were not using the restaurant This not only added interest, but also improved the overall economics of the sites

The first Beefeater opened in 1976 from a large suburban pub and its immediate success set a frantic pace Today, Beefeater operates more than 150 restaurants all over the country

The UK Eating Out Market – Customer profile

Beefeater's core users were in upper-middle socio-economic groups, most having families and owning their own houses Friday and Saturday evenings were the most popular for eating out Restaurants were much quieter on midweek evenings, lunch-times, and Sundays, with some sites barely able to justify opening at all Couples took a quarter of the meals sold Families were another important group, at about 20% The rest consisted of single-sex groups and individuals, usually business people having lunch during the week Although Beefeater knew its customer profile and trade pattern quite well, there was some dissatisfaction with the simplistic segmentation The weekly trade pattern seemed to offer unexploited potential, though how this potential could be taken was not clear

Restaurant Competition

The success of Beefeater inspired many similar restaurants However, there was one main competitor, Harvester, which continued to grow strongly Most worrying for Beefeater was Harvester's unit sales performance Not only did Harvester have larger sites, located in high-spending areas, but also promoted its restaurant heavily with 2-for-1 meal offers, early-dinner promotions, and discounting

The restaurant

The restaurant operating procedures were designed with simplicity in mind Labor was a key cost item A key task for the manager was balancing demands to keep down his labor cost percent against demands for good service Whilst labor cost could be cut easily in the short term, disappointing service discouraged customers from returning many weeks in the future

A key part of the annual budget was dedicated to maintenance Sites were also often redeveloped to extend their trading area or redesign the interior Unfortunately, as the number of Beefeaters and imitators grew, and as pub standard generally improved, consumers' expectations tended to increase as well

Support functions

Beefeater head office departments covered marketing, product development, finance, personnel, design, and purchasing Marketing dealt with regular promotions Marketing heavily influenced restaurant design and menu changes

Changing menus and pricing was time-consuming, but changes had to be made to keep ahead of rivals and to meet rising consumer expectations Prices were high compared with other pubs in the area

Beefeater was cautious about using TV advertising, wondering how to promote a branded chain concept without losing each site's local appeal. The main competitors, though, advertised heavily on TV
The main human resource challenge was to recruit, keep, and train large numbers of restaurant managers as well as help restaurants to find and train staff

Procurement was central to Beefeater's profit performance Consumers were taking food quality as a given, rather than a motivating factor, so consistent high quality was crucial

Past performance and the future

Beefeater has been performing very well since it started its operations in the 70s Even though there have been occasional threats from competitors, the market position of Beefeater has not been harmed The customers' eating out expenditures increased steadily over the 70s and 80s Even though due to the recession of the 90s the customers' eating out expenditures declined, Beefeater came out of the recession without too much damage Beefeater entered the 2000 with high hopes for the future However during the last years, new worries, such as a new competitor and a new economic recession, have come up Now, in 2005, business seems to be more challenging than ever

You will be managing Beefeater in the coming years In the following page, you will find information on the current state of the business and your task in the company

AII.III Experimental manipulations

Choice – Responsible group

You have been the managing director of Beefeater for several years and you have done a good job Restaurant numbers, sales, and profit have remained strong and you have continuously assured that consumers are happy enough with the value that your restaurants offer.

However, lately, the business has proved more challenging. A new competitor, Harvester, recently started up and seems to be developing quickly They are opening restaurants quickly and are heading towards overtaking the market lead from you within the next year The restaurant sector, in general, is also becoming more competitive, especially with widespread discounting in meal prices Moreover, the country once again went into recession, consumer incomes fell back, and eating out expenditures declined.

Your task is to manage Beefeater in order to repel the competitive threats and sustain a lead in the market, while continuing to deliver growth and financial performance The headquarters made 5 million pounds (£ 5,000,000) available for the next 5 years, at the end of which there will be an evaluation of the performance of Beefeater

As the manager, it is your task to choose and implement a strategy Given the current market situation, you came up with the following two alternative strategies, one of which you are going to choose and implement

Strategy A: A strategy that invests specifically in service quality and targets high-income groups Choosing this strategy, you would put emphasis on

- Growth by opening restaurants in *high-income areas only* while closing down smaller, non-profitable restaurants, especially those in low-income areas
- High quality by investing specifically in *service* and *menu appeal*
- Keeping the prices at their current level *slightly above* those of the competitors

Strategy B: A strategy that targets the general population and focuses on the market pressures Choosing this strategy, you would put emphasis on

- Growth by acquiring new restaurants while closing down smaller restaurants that are not profitable
- High quality by investing specifically in *restaurant environment*
- Responding to competitive pressures by following the competitors in discounting so that the prices of Beefeater would at the *same level or slightly less* than those of the competitors

You have recently been informed that you ***will be*** held personally responsible for the performance results attained in the coming years The bonus you will receive ***will*** depend on the performance outcomes, that is, how well you meet the targets of the headquarters

Choice – Not-Responsible group

You have been the managing director of Beefeater for several years and you have done a good job Restaurant numbers, sales, and profit have remained strong and you have continuously assured that consumers are happy enough with the value that your restaurants offer

However, lately, the business has proved more challenging A new competitor, Harvester, recently started up and seems to be developing quickly They are opening restaurants quickly and are heading towards overtaking the market lead from you within the next year The restaurant sector, in general, is also becoming more competitive, especially with widespread discounting in meal prices Moreover, the country once again went into recession, consumer incomes fell back, and eating out expenditures declined

Your task is to manage Beefeater in order to repel the competitive threats and sustain a lead in the market, while continuing to deliver growth and financial performance The headquarters made 5 million pounds (£ 5,000,000) available for the next 5 years, at the end of which there will be an evaluation of the performance of Beefeater

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- High quality by investing specifically in *service* and *menu appeal*
- Keeping the prices at their current level *slightly above* those of the competitors

Strategy B: A strategy that targets the general population and focuses on the market pressures Choosing this strategy, you would put emphasis on

- Growth by acquiring new restaurants while closing down smaller restaurants that are not profitable
- High quality by investing specifically in *restaurant environment*
- Responding to competitive pressures by following the competitors in discounting so that the prices of Beefeater would at the *same level or slightly less* than those of the competitors

You have recently been informed that you will ***not*** be held personally responsible for the performance results attained in the coming years The bonus you will receive will ***not*** depend on the performance outcomes, that is, how well you meet the targets of the headquarters, but ***will be a fixed percentage*** of your yearly salary

No-choice – Responsible – Strategy A group

You are taking over the management of the business of Beefeater after the unexpected early departure of the previous managing director The previous director made sure that restaurant numbers, sales, and profit have remained strong and he has continuously assured that consumers are happy enough with the value that Beefeater offers

However, lately, the business has proved more challenging A new competitor, Harvester, recently started up and seems to be developing quickly They are opening restaurants quickly and are heading towards overtaking the market lead from you within the next year The restaurant sector, in general, is also becoming more competitive, especially with widespread discounting in meal prices Moreover, the country once again went into recession, consumer incomes fell back, and eating out expenditures declined

Your task is to manage Beefeater in order to repel the competitive threats and sustain a lead in the market, while continuing to deliver growth and financial performance The headquarters made 5 million pounds (£ 5,000,000) available for the next 5 years, at the end of which there will be an evaluation of the performance of Beefeater

As the manager, it is your task to implement a strategy The headquarters imposed on you the strategy they want implemented They want you to follow a strategy that invests specifically in service quality and targets high-income groups With such a strategy, they would like you to put emphasis on

- Growth by opening restaurants in *high-income areas only* while closing down smaller, non-profitable restaurants, especially those in low-income areas
- High quality by investing specifically in *service* and *menu appeal*
- Keeping the prices at their current level *slightly above* those of the competitors

You have recently been informed that you ***will be*** held personally responsible for the performance results attained in the coming years The bonus you will receive ***will*** depend on the performance outcomes, that is, how well you meet the targets of the headquarters

No-choice – Responsible – Strategy B group

You are taking over the management of the business of Beefeater after the unexpected early departure of the previous managing director The previous director made sure that restaurant numbers, sales, and profit have remained strong and he has continuously assured that consumers are happy enough with the value that Beefeater offers

However, lately, the business has proved more challenging A new competitor, Harvester, recently started up and seems to be developing quickly They are opening restaurants quickly and are heading towards overtaking the market lead from you within the next year The restaurant sector, in general, is also becoming more competitive, especially with widespread discounting in meal prices Moreover, the country once again went into recession, consumer incomes fell back, and eating out expenditures declined

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As the manager, it is your task to implement a strategy The headquarters imposed on you the strategy they want implemented They want you to follow a strategy that targets the general population and focuses on the market pressures With such a strategy, they would like you to put emphasis on

- Growth by acquiring new restaurants while closing down smaller restaurants that are not profitable.
- High quality by investing specifically in *restaurant environment*
- Responding to competitive pressures by following the competitors in discounting so that the prices of Beefeater would be at the *same level or slightly less* than those of the competitors

You have recently been informed that you ***will be*** held personally responsible for the performance results attained in the coming years The bonus you will receive ***will*** depend on the performance outcomes, that is, how well you meet the targets of the headquarters

No-choice – Not-Responsible – Strategy A group

You are taking over the management of the business of Beefeater after the unexpected early departure of the previous managing director The previous director made sure that restaurant

numbers, sales, and profit have remained strong and he has continuously assured that consumers are happy enough with the value that Beefeater offers

However, lately, the business has proved more challenging A new competitor, Harvester recently started up and seems to be developing quickly They are opening restaurants quickly and are heading towards overtaking the market lead from you within the next year The restaurant sector, in general, is also becoming more competitive, especially with widespread discounting in meal prices Moreover, the country once again went into recession, consumer incomes fell back, and eating out expenditures declined

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- Growth by opening restaurants in *high income areas only* while closing down smaller, non-profitable restaurants, especially those in low-income areas
- High quality by investing specifically in *service* and *menu appeal*
- Keeping the prices at their current level *slightly above* those of the competitors

You have recently been informed that you will ***not*** be held personally responsible for the performance results attained in the coming years The bonus you will receive will ***not*** depend on the performance outcomes, that is, how well you meet the targets of the headquarters but ***will be a fixed percentage*** of your yearly salary

No-choice – Not-Responsible – Strategy B group

You are taking over the management of the business of Beefeater after the unexpected early departure of the previous managing director The previous director made sure that restaurant numbers, sales, and profit have remained strong and he has continuously assured that consumers are happy enough with the value that Beefeater offers

However, lately, the business has proved more challenging A new competitor, Harvester, recently started up and seems to be developing quickly They are opening restaurants quickly and are heading towards overtaking the market lead from you within the next year The restaurant sector, in general, is also becoming more competitive, especially with widespread discounting in meal prices Moreover, the country once again went into recession, consumer incomes fell back, and eating out expenditures declined

Your task is to manage Beefeater in order to repel the competitive threats and sustain a lead in the market, while continuing to deliver growth and financial performance The headquarters made 5 million pounds (£ 5,000,000) available for the next 5 years, at the end of which there will be an evaluation of the performance of Beefeater

As the manager, it is your task to implement a strategy The headquarters imposed on you the strategy they want implemented They want you to follow a strategy that targets the general population and focuses on the market pressures With such a strategy, they would like you to put emphasis on

- Growth by acquiring new restaurants while closing down smaller restaurants that are not profitable
- High quality by investing specifically in *restaurant environment*
- Responding to competitive pressures by following the competitors in discounting so that the prices of Beefeater would be at the *same level or slightly less* than those of the competitors

You have recently been informed that you will ***not*** be held personally responsible for the performance results attained in the coming years The bonus you will receive will ***not*** depend on the performance outcomes, that is, how well you meet the targets of the headquarters, but ***will be a fixed percentage*** of your yearly salary

NOTE: Responsibility manipulation was also included at the end of the decision consequences See section AII V

AII.IV Measurement of initial commitment, confidence, and responsibility

A. Below, there are questions regarding the way you would like to spend the funds (£ 5,000,000) made available by the headquarters Based on the information you read, please answer the following questions We are interested in ***your opinion as the managing director of Beefeater***

1) Which of the two strategies would you choose? Please circle the alternative that you choose

A) Strategy A

B) Strategy B

2) Over the coming 5 years, how much of the total funds (£ 5,000,000) would you be willing to spend on the strategy that is imposed on you by the headquarters?

_____Pounds

3) Below, you are given ten statements As the managing director of Beefeater, please identify the extent to which you agree with these statements For each statement, a scale ranging from 1 to 7 is provided with 1 indicating "strongly disagree" and 7 indicating "strongly agree" Please indicate your choice by circling the value you choose

a) I will stick to this strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

b) I do not feel any loyalty to this strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

c) I am committed to this strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

d) I feel obligated to invest in this strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

e) I feel attached to this strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

f) I intend to stick to this strategy even though negative performance is encountered

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

g) I do not think this strategy is going to make us meet the headquarters' targets in the coming years

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

h) I have confidence in this strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

i) I feel responsible for the choice of this strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

j) I feel responsible for the eventual performance outcomes of this strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

AII.V Decision consequences

It is now 2010 There has recently been a performance evaluation of the strategy you have been implementing the last 5 years The purpose of this evaluation was to see how well the strategy served in meeting the targets set in 2005 These targets were repelling the competitive threats and sustaining a lead in the market, while continuing to deliver growth and financial performance The following contains a summary of the performance results of Beefeater

Profit below the target Over the last five years, the overall profit of Beefeater has been below the target of the headquarters

Slow growth The number of Beefeater restaurants has been increasing However, the growth has been very slow Some of the inefficient restaurants were closed down but this process has been very ineffective

Increased competitor threat Just like the number of Beefeater restaurants, the number of the competitor restaurants has also been increasing The competitor has been growing at a dangerous pace over the five years and coming closer to Beefeater in terms of the number of customers Beefeater could not overcome the danger of losing the lead in the market and moreover, it seems like, over the coming year, the competitor is going to take over the market lead from Beefeater

Decreased customer's perception of value It is not only the number of restaurants of the competitor that alarm the headquarters but also the reported customers' perception of value Market research shows that over the 5 years, the customers' perception of quality has decreased whereas the customers' perception of competitor's quality has been increasing This fact, coupled with the continuously declining number of meals served per restaurant, leads to warnings from the headquarters

All in all, Beefeater could not fulfill the targets set five years ago

Responsible: On the same day you received the performance evaluation report, you also received a memo from the headquarters In this memo, it was stated that the headquarters ***hold*** you personally responsible for the performance results of the last five years As you were informed in 2005, this ***will have*** consequences for the bonus you will get at the end of the year

Not-Responsible: On the same day you received the performance evaluation report, you also received a memo from the headquarters In this memo, it was stated that the headquarters do ***not*** hold you personally responsible for the performance results of the last five years As you were informed in 2005, this will ***not*** have any consequences for the bonus you will get at the end of the year Your bonus will be a fixed percentage of your yearly salary

AII.VI Measurement of final commitment, confidence, and responsibility

Given information you just read, please answer the following questions regarding the strategy you started implementing in 2005 as the managing director of Beefeater
1) If new funds in the amount of 5 million pounds (£ 5,000,000) were made available now, how much of these funds would you be willing to spend on the *continuation of the implementation of the strategy that you started implementing in 2005*?

_____Pounds

2) Below, you are given ten statements As the managing director of Beefeater, please identify the extent to which you agree with these statements For each statement, a scale ranging from 1 to 7 is provided with 1 indicating "strongly disagree" and 7 indicating "strongly agree" Please indicate your choice by circling the value you choose

a) I will stick to this strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

b) I do not feel any loyalty to this strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

c) I am committed to this strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

d) I feel obligated to invest in this strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

e) I feel attached to this strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

f) I intend to stick to this strategy even though negative performance is encountered

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

g) I do *not* think this strategy is going to make us meet the headquarters' targets in the coming years

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

h) I have confidence in this strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

i) I feel responsible for the choice of this strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

j) I feel responsible for the performance results attained over the past 5 years

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

AII.VII Measurement of information preference

Before making further funds available, the headquarters would like you to write a report explaining the performance of the last five years and how you would spend the additional funds if they were to be made available To write your report, you have the opportunity to request further information A consulting firm in which you have confidence will gather this information for you They did excellent jobs for you in the past

You identified six main information categories you are interested in However, due to time and monetary constraints, you need to specify the kind of information you want within each category To enable this, the consulting company provided you with two possible reports for each information category They would like you to choose the report you ***prefer the most*** Below, for each information category, you are given two questions In the first, we would like you to choose the report you prefer the most In the second, we would like you to state how much you prefer this report over the one you did not choose

Report 1:

Which of the following reports would you like to receive? Please indicate your choice by circling the letter corresponding to the report of your choice

a) A report that estimates the likelihood that the further implementation of this strategy will bring *success* to the company and explains the reasons for this possible success

b) A report that estimates the likelihood that the further implementation of this strategy will bring *failure* to the company and explains the reasons for this possible failure

Report 2:

Which of the following reports would you like to receive?

a) A report that focuses on linking the failure of the strategy to factors that were *under* your control

b) A report that focuses on linking the failure of the strategy to factors that were *out* your control

Report 3:

Which of the following reports would you like to receive?

a) A report that includes an estimate of the total costs (such as the total investments, indirect costs, time investment etc) of this strategy so far

b) A report that includes an estimate of the required future costs in case this strategy is continued

Report 4:

Which of the following reports would you like to receive?

a) A report that lists the advantages of this strategy over possible alternative strategies and explains why this strategy is better than the others

b) A report that lists the advantages of possible alternative strategies over this strategy and explains why these are better than this strategy

Report 5:

Which of the following reports would you like to receive?

a) A report that outlines the main causes of the failure that were *permanent* and *are* likely to occur again in the future

b) A report that outlines the main causes of the failure that are *temporary* and *are not* likely to occur again in the future

Report 6:

Which of the following reports would you like to receive?

a) A report that gives an overview of similar restaurants where the implementation of the same strategy brought success to the company

b) A report that gives an overview of similar restaurants where the implementation of the same strategy brought failure to the company

Report 7: Please indicate how much you would like to have the following report

A report showing that the performance outcomes of the last five years are actually much better than they were stated in the performance evaluation of the headquarters

I would not like to see this report	1	2	3	4	5	6	7	I would very much like to see this report

AII.VIII Measurement of reasons for commitment

In question 1 in part D on page 10, you indicated the amount of money you'd like to invest in the strategy Please indicate this amount once again _____ pounds

If the amount you indicated is ***more than 0 pounds***, that is, if you decided to re-invest in the strategy please answer the questions in section 'I' below

I) Please indicate the extent to which you agree with the following statements

1) I decided to re-invest in the strategy so that I will not lose the headquarters' support

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

2) I chose to invest in this strategy in the past Deciding to stop now would undermine my reputation as a manager who makes consistent decisions

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

3) I thought the amount of money invested in 2005 was not enough to make this strategy work at its full potential Hence, I decided to invest more money to make sure that the strategy will work

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

4) I think some aspects of this strategy are good So I decided to invest some of the available funds to strengthen these aspects and keep the rest for developing and implementing another strategy

Strongly disagree	1	2	3	4	5	6	7	Strongly agree

5) By re-investing in the strategy, I would like to show that my decision in 2005 was a correct one

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

6) I want to keep on supporting this strategy because I have already invested so much time and money in it

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

7) I do not think we have enough information to evaluate this strategy thoroughly By re-investing in this strategy, I would like to have collect additional information to understand its effects better

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

8) I decided to re-invest in the strategy, because I did not think that the performance results were bad

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

AII.IX Questions on information preferences prior to the second investment decision

As a manager, to be able to make informed decisions, you have the habit of collecting information You work regularly with a consulting company that collects the information you request and presents it to you in a report form

You are now at the eve of implementing a new strategy Headquarters would like you to write a report explaining the expected future performance of Beefeater and how you will spend the available funds To use as an input for this report, you asked the consulting company to collect information for you You identified four main information categories you are interested in However, given the time and monetary constraints, you need to specify the kind of information you want within each category To enable this, the consulting company provided you with possible reports for each information category They would like you to choose the report you ***prefer the most*** Below, for each information category, you are given two questions In the first question, we would like you to choose the report you prefer In the second questions, we would like you to state how much you prefer this report over the one you did not choose

Information category 1: A report in this category will contain information on the *predicted future performance* of this strategy

Which of the following reports would you like to receive? Please indicate your choice by circling the letter corresponding to the report of your choice

a) A report that estimates the likelihood that the implementation of this strategy will bring success to the company and explains the reasons for this possible success

b) A report that estimates the likelihood that the implementation of this strategy will bring failure to the company and explains the reasons for this possible failure

Information category 2: A report in this category will contain information on *circumstances under which this strategy could fail*. Within this report, you can identify two types of information.

1) Which of the following reports would you like to receive?

a) A report that focuses on those factors that are *under* your control

b) A report that focuses on those factors that are *out* your control

2) Which of the following reports would you like to receive?

a) A report that outlines the main causes of a possible failure that would be *temporary* and *would not be* likely to occur again in the future

b) A report that outlines the main causes of a possible failure that would be *permanent* and *would be* likely to occur again in the future

Information category 3: A report in this category will contain information on possible *alternative strategies*.

Which of the following reports would you like to receive?

a) A report that lists the advantages of possible alternative strategies over this strategy and explains why these are better than this strategy

b) A report that lists the advantages of this strategy over possible alternative strategies and explains why this strategy is better than the others

Information category 4: A report in this category will contain information on *other restaurants that implemented a similar strategy*.

Which of the following reports would you like to receive?

a) A report that gives an overview of similar restaurants where the implementation of the same strategy brought failure to the company

b) A report that gives an overview of similar restaurants where the implementation of the same strategy brought success to the company

APPENDIX III:

Case description and questions used in experiments three and four

AIII.I General Instructions

Before you begin with answering the questionnaire, read the following instructions carefully

- In this questionnaire, we ask you to picture yourself as a member of a board of directors of a big supermarket Try to get into this role as much as possible
- There are no correct or wrong answers Try to answer the questions as much as possible from the point of view of a member of the board of directors
- Fill in the questionnaire individually Your neighbors have a different questionnaire There are 4 different questionnaires dispersed around the room
- Take your time to fill in the questionnaire If you are ready try not to talk to your colleagues
- **The questionnaire is composed of four stages. Before you move onto the next stage, make sure to answer the questions in the current stage fully. Do not look at the next stages.**
- **Once you have move don, do not go back to the previous stages and change your answers.**

AIII.II Case Description and initial commitment manipulation

Committed

You are a member of the board of directors of a large, nation-wide supermarket chain You have been one of the directors for many years During the period you were in the board, your company has always successfully distinguished itself from its rivals with its large variety of high quality products in its assortment and personalized service Of course, high quality came at a price Your supermarkets have always been more expensive than the rivals However, the higher prices do not repel the customers who seem to be willing to pay for higher quality The customer satisfaction surveys have always shown that customers prefer your supermarket over other supermarkets and they do so because they believe that in your supermarket, they can find whatever product they want, there are always alternatives to choose from within each product category, and the products are always of high quality

However, lately, there have been some difficulties and the business has been more challenging During the last year, it has been getting more and more difficult to sustain the same quality standards In the past, there had been times with similar problems, however,

now, the number of customers showed a decline for the first time in many years This new problem was also reflected in the last customer satisfaction survey The customers still thought that the quality and variety of your assortment was very good However, this time they also thought that the prices are too high

This undesirable development became the topic of many board meetings during which a new strategy is discussed One of the strategies you proposed is something you proposed so many times in the past discounting Every time there have been similar problems, you promoted that the prices should be lowered to be able to cope with the competition and not to lose the customers to the competitors However, a senior board member always fiercely opposed the idea, advocated the short-comings of the strategy, and pointed out that the implementation of this strategy would lead to the downfall of the company To your dislike, he has been successful and this strategy never got implemented. However, now, the situation seems to be different At every board meeting, the discounting idea comes up and the number of supporters seems to be increasing As usual, you strongly favor the idea and argue why it is a very good strategy You point out, over and over again, that by decreasing prices, you would not only keep your customers but also increase the target market group The number of customers would increase since some of the customers who avoided your supermarket due to high prices would now choose to come to your shops As usual, the opposition is there and the senior board member argues that it is impossible to offer a high-quality assortment with discounted prices You responded to this by reminding the board the results of the last customer satisfaction survey and explained that in case the discounting is not implemented, the customers will be lost to the competitor and there will not be any customers left to sell anything to

After long discussions, the majority of the board of directors voted, in agreement with your efforts and advice, in favor of your discounting strategy and hence, the decision was taken to start the implementation as of next month The board decided to allocate a total of 1 million euros for the implementation of the strategy (commercials, promotions, subsidizing the price discounts etc) in the coming 6 months It was also decided that in 6 months time, the performance of the discounting strategy will be evaluated and the board will then decide whether the strategy will be continued with a further allocation of 1 million euros

Not-Committed

You are a member of the board of directors of a large, nation-wide supermarket chain You have been one of the directors for many years During the period you were in the board, your company has always successfully distinguished itself from its rivals with its large variety of high quality products in its assortment and personalized service Of course, high quality came at a price Your supermarkets have always been more expensive than the rivals However, the higher prices do not repel the customers who seem to be willing to pay for higher quality The customer satisfaction surveys have always shown that customers prefer your supermarket over other supermarkets and they do so because they believe that in your supermarket, they can find whatever product they want, there are always alternatives to choose from within each product category, and the products are always of high quality

However, lately, there have been some difficulties and the business has been more challenging During the last year, it has been getting more and more difficult to sustain the same quality standards In the past, there had been times with similar problems, however,

now, the number of customers showed a decline for the first time in many years This new problem was also reflected in the last customer satisfaction survey The customers still thought that the quality and variety of your assortment was very good However, this time they also thought that the prices are too high

This undesirable development became the topic of many board meetings during which a new strategy is discussed One of the strategies proposed is something that came up so many times in the past discounting Every time there have been similar problems, some people in the board promoted that the prices should be lowered to be able to cope with the competition and not to lose the customers to the competitors You have always fiercely opposed the idea and advocated the short-comings of the strategy You pointed out that lower prices signal low quality and that this would be detrimental for a company that is known for its high quality standards Moreover, you thought that discounting could initiate a price war and cause you to decrease prices even further So you argued, over and over again, that the implementation of this strategy would lead to the downfall of the company In the past, you have been successful and this strategy never got implemented However, now, the situation seems to be different At every board meeting, the discounting idea comes up and the number of supporters seems to be increasing As usual, you strongly oppose the idea and argue why it is not a good strategy You even said that you will leave the company in case this strategy is implemented because you believed that it is impossible to offer a high-quality assortment with discounted prices You pointed out, once again, that your target market segment is quality sensitive and that the customers will be lost if you would implement the discounting strategy

After long discussions, the majority of the board of directors voted, contrary to your efforts and advice, in favor of the discounting strategy and hence, the decision was taken to start the implementation as of next month The board decided to allocate a total of 1 million euros for the implementation of the strategy (commercials, promotions, subsidizing the price discounts etc) in the coming 6 months It was also decided that in 6 months time, the performance of the discounting strategy will be evaluated and the board will then decide whether the strategy will be continued with a further allocation of 1 million euros

AIII.III Measurement of initial commitment, confidence, and responsibility

Below, there are questions regarding your opinion on the discounting strategy In answering these questions, please give ***your opinion as a long-term member of the board of directors***

1) Please indicate your level of support for the discounting strategy

I do not support it at all 1 2 3 4 5 6 7 I support it fully

2) If you solely were to decide on the amount of money to be invested for the implementation of the discounting strategy, how much of the available funds (in the amount of 1 million euros) would you invest?

_____Euros (Fill in a number between 0 and 1 million)

3) Below, you are given ten statements As a member of the board of directors, please identify the extent to which you agree with these statements For each statement, a scale

ranging from 1 to 7 is provided with 1 indicating "strongly disagree" and 7 indicating "strongly agree" Please indicate your choice by circling the value you choose

a) I will stick to the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

b) I do not feel any loyalty to the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

c) I am committed to the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

d) I feel obligated to invest in the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

e) I feel attached to the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

f) I do not think the discounting strategy is a good strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

g) I have confidence in the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

h) I feel responsible for the choice of the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

i) I feel responsible for the future performance outcomes of the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

j) I feel responsible for the idea behind the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

AIII.IV Decision consequences manipulation

Positive consequences

Now that the 6 months are past, it is time for a performance evaluation The overall results attained with the implementation of the discounting strategy are as follows As expected, the number of customers and sales earnings increased over the last 6 months

The discounting strategy worked very well As the customer satisfaction survey 6 months ago showed, your own customers were starting to thinking that the prices were a bit too high By decreasing the prices, you could keep these customers The customer satisfaction surveys of the last months have shown that your customers are very satisfied with the quality and price level your supermarket offers

By decreasing the prices, you were also able to target a larger segment of the population Those consumers who value quality but found your supermarket a bit too expensive in the past preferred your supermarket once the prices were lowered They also rate your supermarkets as very pleasant environment which serves high quality products at reasonable prices

The competitors responded by decreasing their prices. This led to a price war during which all parties were forced to decrease their prices over an over again But overall, this did not have an undesired effect for your business Even though you were forced to set the prices lower than you intended to at the beginning you managed to attract a greater share of customers
The overall result of the last 6 months was that, even though you decreased prices, the sales earnings increased due to the increase in the number of customers

Negative consequences

Now that the 6 months are past, it is time for a performance evaluation The overall results attained with the implementation of the discounting strategy are as follows The expected increase in customer numbers did not take place This coupled with the decrease in prices, there was an overall decrease in sales earnings

During the first month of its implementation, the discounting strategy worked very well The decreased prices stimulated the customers to choose for your supermarket However, this trend did not last for long The competitors responded by decreasing their prices slightly below your prices This took away the advantage of previous discounting To fight with this new trend, your supermarket chain had to decrease prices even further As a result, there was a furious price war going on and your company was right in the middle of it. Every time you decreased prices, the competitor responded by lower prices, forcing you to decrease your prices even further

The main difficulty was with the high quality products To be able to offer them at lower prices you needed to reduce the costs of these products However, it seems like there are problems with some of the producers You are now right in the middle of negotiation with the

producers but if they are not willing to adjust their prices you will end up selling some products almost at your cost price

Yet another difficulty arose when you wanted to introduce new products Since the customers got used to low prices it turned out to be difficult to introduce new, higher-priced products The customers appeared to be less willing to pay for them This threatens to weaken one of your competitive advantages regularly adding new, interesting, high-quality products to your assortment

As for the customers' evaluation of quality, they thought that there was a slight decrease in the level of quality but the overall average rating of your quality still remained above that of the competitors

AIII.V Measurement of final commitment, confidence, and responsibility

Now that the performance information has been made available to each board member it is time for the next board meeting During the last meeting, it was decided that before coming to the next meeting each board member will individually indicate his or her level of support for the continuation of the discounting strategy Hence the following questions were prepared As a member of the board, you are asked to answer these questions The answers of all the board members will be used as an input for the next board meeting

1) Please indicate your level of support for the continuation of the discounting strategy

I do not support it at all 1 2 3 4 5 6 7 I support it fully

2) If you solely were to decide on the amount of money to be invested for the continuation of the discounting strategy, how much of the available funds (in the amount of 1 million euros) would you invest?

_____Euros (Fill a number between 0 and 1 million)

3) Below, you are given ten statements As a member of the board of directors, please identify the extent to which you agree with these statements For each statement, a scale ranging from 1 to 7 is provided with 1 indicating "strongly disagree" and 7 indicating "strongly agree" Please indicate your choice by circling the value you choose

a) I will stick to the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

b) I do not feel any loyalty to the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

c) I am committed to the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

d) I feel obligated to invest in the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

e) I feel attached to the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

f) I do not think the discounting strategy is a good strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

g) I have confidence in the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

h) I feel responsible for the choice of the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

i) I feel responsible for the future performance outcomes of the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

j) I feel responsible for the idea behind the discounting strategy

Strongly disagree 1 2 3 4 5 6 7 Strongly agree

AIII.VI Measurement of information preference

The board will get together soon to evaluate the discounting strategy It is likely that there will be members supporting the strategy as well as those who oppose it and that there will be discussions on the pros and cons of the discounting strategy and comparisons will be made with other possible strategies It is expected that the discussions during the meeting will result in a decision on whether to go on with the discounting strategy or not To facilitate this discussion and explain your point of view better, you want to write a report to present to the board before the meeting In this report, you would like to ***explain the developments of the last year, defend your point of view, and explain the level of support you currently give to the continuation of the discounting strategy***

You identified 7 main information categories that you definitely would like to include in your report You asked a consulting company, with whom you worked many times in the past, to collect the information for you Below, these 7 categories and the kinds of information available in each category are listed Please identify which type of information you would ***prefer to include in your report the most***

Below, for each information category, you are given two types of questions In the first, we would like you to choose the information type you prefer the most (*please choose only one*)

In the second, we would like you to state how much you prefer this information over the one you did not choose

Information category 1: This category contains information on the *predicted future performance* of the discounting strategy in case the strategy is continued

Which of the following information items would you like to include in your report? Please indicate your choice by circling the letter corresponding to the item of your choice

a) An estimation of the likelihood that the further implementation of the discounting strategy will bring *success* (i.e. increase in customer numbers and sustained high quality) to the company and the reasons for this possible success

b) An estimation of the likelihood that the further implementation of the discounting strategy will bring *failure* (i.e. decrease in customer numbers and lower quality) to the company and the reasons for this possible failure

Information category 2: This category contains information on the *factors that contributed to the performance of the discounting strategy*

1) Which of the following information items would you like to include in your report?

a) Information that focuses on linking the performance of the discounting strategy to factors that are intrinsic to the strategy (e.g. the way the strategy is implemented, the appropriateness of the strategy) and hence were *under* your control

b) Information that focuses on linking the performance of the discounting strategy to factors that are *not* intrinsic to the strategy (e.g. the economic developments, market structure) and hence were *out of* your control

2) Which of the following information items would you like to include in your report?

a) Information that stresses that the main causes of the achieved performance were *permanent* causes and *are likely to occur again* in the future

b) Information that stresses that the main causes of the achieved performance were *temporary* causes and *are not likely to occur again* in the future

Information category 3: This category contains information on the *costs associated with implementing the discounting strategy*. Within this category you can identify two types of information

1) Which of the following information items would you like to include in your report?

a) Information indicating that 70–to–80% of the costs required for successful implementation is already invested

b) Information indicating that only 30–to–40% of the costs required for successful implementation is invested

2) Which of the following information items would you like to include in your report?

a) An estimate of the total costs (such as the total investments, indirect costs, time investment etc.) made for the discounting strategy so far

b) An estimate of the required future costs in case the discounting strategy is continued

Information category 4: This category contains information on possible *alternative strategies*

Which of the following information items would you like to include in your report?

a) Information on the advantages of the discounting strategy over possible alternative strategies and why the discounting strategy is better than the others

b) Information on the advantages of possible alternative strategies over the discounting strategy and why these are better than the discounting strategy

Information category 5: This category contains information on *similar supermarkets that implemented the discounting strategy in the past*

Which of the following information items would you like to include in your report?

a) An overview of similar supermarkets where the implementation of the discounting strategy brought success to the company

b) An overview of similar supermarkets where the implementation of the discounting strategy brought failure the company

Information category 6: This category contains more *detailed* information on the *actual performance of the discounting strategy over the past 6 months*

Which of the following information items would you like to include in your report?

a) Information indicating that the performance of the discounting strategy over the past 6 months is actually much *better* than it was stated in the performance evaluation

b) Information indicating that the performance of the discounting strategy over the past 6 months is actually much *worse* than it was stated in the performance evaluation

c) Information indicating that the performance of the discounting strategy over the past 6 months is correctly reflected in the performance evaluation

Information category 7: This category contains information on the *correctness of the criteria used for judging the performance of the discounting strategy*

Which of the following information items would you like to include in your report?

a) Information stressing that the *criteria* to judge the performance of the discounting strategy were set *correctly* the reported performance is an *accurate* representation of the actual performance

b) Information stressing that the *criteria* to judge the performance of the discounting strategy were set *incorrectly* the reported performance seems *better* than it really is

c) Information stressing that the *criteria* to judge the performance of the discounting strategy were set *incorrectly* the reported performance seems *worse* than it really is

English Summary

Selective Exposure to Information in the context of Escalation of Commitment

What should decision-makers do in the face of failure? Should they continue to invest money with the hope of turning things around or pull the plug and change course of action? In the last decades, an extended body of literature has investigated the commitment of decision-makers to losing courses of action. Numerous studies have shown that those responsible for the choice of an initial course of action keep on remaining committed more than those not responsible for the initial choice. This phenomenon is referred to as escalation of commitment. This dissertation deals with the occurrence of selective exposure to confirming information under these so-called escalation situations.

This dissertation aims to make two contributions.

The common approach in past research has been to consider information as an 'objective' given without considering how the perception of the decision-makers can affect the choice and perception of the information used. Unlike prior research, this dissertation does not make this assumption and focuses on the information preference of decision makers. While doing so, the occurrence of a cognitive bias, i.e. selective exposure to information, alongside escalation is studied. Selective exposure to information is the tendency of decision-makers to prefer and use information that is consistent with their beliefs, attitudes, and decisions (Festinger, 1957; Frey, 1986; Fischer, Jonas, Frey, and Schulz-Hardt, 2005). In this dissertation, the assertion is that the tendency to prefer and use confirming information is one of the consequences of escalation. It is important to study this assertion since if confirming information leads to further escalation and decision-makers prefer and actively select confirming information under escalation situations then they can get trapped in a vicious circle of escalation and information biasing. In such a situation, withdrawal from a failing course of action can become a very unlikely outcome. From a practical perspective, the insight into the information preference of escalating decision-makers gained from this research can be used to devise better information search and processing strategies. Such strategies could be useful in avoiding unnecessary escalation and unnecessary time and money investments. From a theoretical perspective, this research makes a step to jointly

studying escalation of commitment and selective exposure to information and understanding the consequences of their co-occurrence Moreover, this research can provide insight into the role of information (categorized under the project determinants of escalation) in the escalation research Staw (1997) pointed out the importance of perceived project determinants in escalation decisions Prior research, on the other hand, focused mainly on project determinants and not their perception This research aims at bridging that gap by focusing on the perception of the project determinants

A second contribution of this dissertation is in the domain of de-escalation which is an understudied area within the domain of escalation Causal loop diagrams based on the principles of System Dynamics are proposed as a de-escalation tool that can also potentially decrease selective exposure tendencies System Dynamics (SD) is a methodology for modeling and analyzing complex problems from a feedback perspective (Forrester, 1961, Sterman, 2000) The main purpose of modeling in SD is understanding *why* a certain situation has occurred (e g the failure of the strategy) and use this information to design robust strategies to improve the situation (e g adjustments to the existing strategy or development of a new strategy to solve the problem) Such a tool could get the decision-makers to actively think about the problem and its causes and get them involved in the generation of alternative strategies As such, through providing the decision-makers more objective grounds to base their decisions on, using an SD model could help eliminate the irrational reasons that stimulate escalation From a practical perspective, using such a technique would not only help to decrease escalation tendencies but also provide grounds for more thorough decision-making From a theoretical perspective, this research will introduce System Dynamics as a potentially useful method that has not previously been considered as a possible de-biasing technique

Even though it was not one of the main goals of this research, this study also has a contribution regarding the operationalization of both commitment and escalation of commitment In this research, a new measure of commitment and escalation were developed Regarding the measure of commitment, alongside money invested, which measures (stated) behavioral commitment, felt-commitment was measured as a proxy for (stated) attitudinal commitment To do so, a 5-item scale was developed Regarding the measure of escalation, the change in commitment, calculated as the difference between commitment levels before and after the decision consequences was used

The dissertation is organized as follows: In chapter 2, literature on escalation of commitment and selective exposure to information is reviewed. In chapter 3, the link between justification motives and selective exposure to information is developed further. While doing so, dissonance theory is used. The conceptual model, the research questions, and the hypotheses for the research are presented. The conceptual model for the research depicts choice, responsibility for decision consequences, initial commitment, and decision consequences as the four factors that are expected to stimulate not only escalation of commitment but also selective exposure to confirming information. In this thesis, laboratory experiments are used as the research method. Subjects were asked to take part in a role-playing decision-making scenario that simulates a situation in which escalation of commitment may take place. A questionnaire was used to gather data on the choices, commitment levels, and information preference of the subjects. Chapters 4, 5, and 6 are empirical in nature. In chapter 4, the focus is on the effect of choice and responsibility for decision consequences on the selective exposure to confirming information. The hypotheses on whether decision-makers who are responsible for the choice and consequences of a strategy prefer confirming information over disconfirming information are tested. In chapter 5, the focus is on the effect of initial commitment and decision consequences on selective exposure tendencies. In chapter 6, the focus is on establishing an instrument that can work both as a de-escalation tool and counterbalance the tendencies to selectively search for confirming information. Such a tool based on the System Dynamics method is proposed and tested by means of an experiment. Finally, in chapter 7, the conclusions of the four experiments presented in the preceding chapters and the implications of this thesis for theory and practice are discussed, limitations of this research are pointed out, and recommendations for future research are identified.

Summary of the conclusions: The main conclusions based on the empirical findings are that choice and initial commitment to a failing course of action lead to selective exposure to information but only when information is related to the past and future performance of the strategy. When the information is of a diagnostic nature or related to costs, no selective exposure tendencies are found. Interestingly, however, the overall tendency during information search seems to be for disconfirming rather than confirming information since the total number of confirming information items requested remained low both for the committed and non-committed subjects.

Use of causal loop diagrams prior to the second investment decision stimulates both de-escalation and a decrease in selective exposure tendencies in information items related to the (future) performance of the course of action

Given the results that the attitudinal and the behavioral commitment levels of a subject differ at a given situation, it was concluded that to understand escalation situations better, measures for both behavioral and attitudinal commitment are necessary Moreover, given the different insights that can be gained from the measure of escalation as change in commitment versus commitment after second investment decision, it was concluded that to understand escalation situations better, both measures are necessary

Nederlandse samenvatting

Selectieve Blootstelling aan Informatie in de context van Escalatie van Commitment

Wat moeten besluitvormers doen wanneer geconfronteerd met falen? Moeten zij verder blijven investeren in de hoop het tij te doen keren of het project beëindigen en van koers veranderen? In de voorbije decennia werd een uitgebreide literatuurstroom gewijd aan de commitment van besluitvormers tot verlieslatende strategieën. Verscheidene studies hebben aangetoond dat zij die verantwoordelijk waren voor de keuze van een initiële strategische richting zich meer blijven committeren dan zij die niet verantwoordelijk waren voor de initiële keuze. Dit fenomeen wordt 'escalatie van commitment' genoemd. Dit proefschrift handelt over selectieve blootstelling aan bevestigende informatie in dit soort escalatiesituaties.

Met dit proefschrift worden twee bijdragen nagestreefd.

De algemene benadering in voorgaand onderzoek was uit te gaan van de veronderstelling dat informatie een objectief gegeven is zonder rekening te houden met hoe de perceptie van besluitvormers de keuze en perceptie van de gebruikte informatie kan beïnvloeden. In tegenstelling tot voorgaand onderzoek wordt in dit proefschrift niet van deze veronderstelling uitgegaan en staat de voorkeur voor informatie van besluitvormers centraal. Zo wordt naast escalatie een cognitieve bias bestudeerd, namelijk selectieve blootstelling aan informatie. Selectieve blootstelling aan informatie is de neiging van besluitvormers om informatie te verkiezen en te gebruiken die consistent is met hun overtuigingen, attitudes en beslissingen (Festinger, 1957; Frey, 1986; Fischer, Jonas, Frey, and Schulz-Hardt, 2005). In dit proefschrift wordt gesteld dat de neiging om bevestigende informatie te verkiezen en te gebruiken een van de gevolgen is van escalatie van commitment. Het is belangrijk deze stelling te onderzoeken want als bevestigende informatie leidt tot verdere escalatie en besluitvormers bevestigende informatie verkiezen en actief selecteren in escalatiesituaties, kunnen zij terechtkomen in een vicieuze cirkel van escalatie en eenzijdige/imperfecte informatieselectie. In dat soort situatie kan het erg onwaarschijnlijk worden dat men zich zal terugtrekken uit een verlieslatende strategie. Vanuit een praktijkperspectief kan het inzicht uit

dit onderzoek betreffende de informatievoorkeur van escalerende besluitvormers worden gebruikt om strategieën van zoeken en verwerken van informatie beter vorm te geven. Deze strategieën zouden kunnen helpen onnodige escalatie en onnodige investeringen in tijd en geld te vermijden. Vanuit een theoretisch perspectief is dit onderzoek een stap in de richting van de gezamenlijke studie van escalatie van commitment en selectieve blootstelling aan informatie en inzicht geven in de gevolgen wanneer deze beide fenomenen samen voorkomen. Bovendien kan dit onderzoek inzicht geven in de rol van informatie (gecategoriseerd als een projectgerelateerde determinant van escalatie) in de escalatieliteratuur. Staw (1997) wees op het belang van de perceptie van projectdeterminanten in escalatiebeslissingen. Voorgaand onderzoek heeft zich echter voornamelijk gericht op projectdeterminanten en niet op hun perceptie. Dit onderzoek heeft tot doel deze lacune te overbruggen door zich te richten op de perceptie van projectdeterminanten.

Een tweede bijdrage van dit proefschrift ligt in het domein van de-escalatie, een domein dat in voorgaand escalatie-onderzoek weinig aandacht heeft gekregen. Causale loop diagrams gebaseerd op de principes van systeemdynamica worden voorgesteld als een middel tot de-escalatie dat ook de neiging tot selectieve blootstelling zou kunnen verzwakken. Systeemdynamica (SD) is een methodologie om complexe problemen te modelleren en te analyseren vanuit een feedbackperspectief (Forrester, 1961; Sterman, 2000). Het hoofddoel van modelleren in SD is inzicht te verkrijgen in *waarom* een situatie zich heeft voorgedaan (bv. het falen van een strategie) en deze informatie te gebruiken om robuuste strategieën te ontwikkelen om de situatie te verbeteren (bv. aanpassen van de bestaande strategie of ontwikkelen van een nieuwe strategie om het probleem aan te pakken). Dit soort hulpmiddel kan besluitvormers ertoe aanzetten actief over het probleem en zijn oorzaken na te denken en kan hen beter betrekken bij het genereren van alternatieve strategieën. Als dusdanig kan het gebruik van een SD model, door het verschaffen aan besluitvormers van een meer objectieve basis voor hun beslissingen, irrationale factoren die escalatie stimuleren helpen elimineren. Vanuit een praktijkperspectief zou het gebruik van dit soort techniek niet enkel helpen bij het verminderen van de neiging tot escalatie maar ook een basis bieden voor meer gegronde besluitvorming. Vanuit een theoretisch perspectief zal dit onderzoek systeemdynamica introduceren als een mogelijk nuttige methode die niet eerder werd besproken als mogelijke de-escalatietechniek.

Al was het niet een van de belangrijkste doelstellingen van dit onderzoek, deze studie draagt ook bij tot de operationalisering van zowel commitment als escalatie van commitment In dit onderzoek werden nieuwe maatstaven voor commitment en escalatie ontwikkeld Wat betreft de maatstaf van commitment werd naast het geinvesteerde geldbedrag wat (zelf-gerapporteerde) gedragsmatige commitment meet, gevoelsmatige commitment gemeten als benadering van (zelf-gerapporteerde) attitudinale commitment Daarvoor werd een 5-item meetschaal ontwikkeld Wat betreft de maatstaf van escalatie werd de verandering in commitment gemeten, berekend als het verschil tussen de niveau's van commitment voor en na de gevolgen van de beslissing

Het proefschrift is als volgt gestructureerd: In hoofdstuk 2 wordt een overzicht gegeven van de literatuur over escalatie van commitment en selectieve blootstelling aan informatie In hoofdstuk 3 wordt het verband tussen motieven van rechtvaardiging en selectieve blootstelling aan informatie verder ontwikkeld Hierbij wordt gebruik gemaakt van dissonantietheorie Het conceptuele model, de onderzoeksvragen en de hypotheses voor het onderzoek worden gepresenteerd Het conceptuele model voor het onderzoek identificeert keuze, verantwoordelijkheid voor de gevolgen van de beslissing, initiele commitment en de gevolgen van de beslissing als de vier factoren waarvan verwacht wordt dat ze niet alleen escalatie van commitment maar ook selectieve blootstelling aan bevestigende informatie stimuleren In dit proefschrift worden laboratoriumexperimenten gebruikt als onderzoeksmethode Respondenten werd gevraagd deel te nemen in een besluitvormingsscenario, in de vorm van een rollenspel, dat een situatie simuleert waarin escalatie van commitment zou kunnen plaatsvinden Data over keuzes, niveau's van commitment en voorkeuren voor informatie van de respondenten werden via een vragenlijst verzameld Hoofdstukken 4, 5 en 6 zijn empirisch van aard In hoofdstuk 4 ligt de focus op het effect van keuze en verantwoordelijkheid voor de gevolgen van de beslissing op selectieve blootstelling aan bevestigende informatie De hypothesen dat besluitvormers die verantwoordelijk zijn voor de keuze en gevolgen van een strategie, bevestigende informatie verkiezen boven niet-bevestigende informatie worden getest In hoofdstuk 5 ligt de focus op het effect van initiele commitment en gevolgen van de beslissing op de neiging tot selectieve blootstelling In hoofdstuk 6 ligt de focus op het bepalen van een instrument dat kan werken als middel tot de-escalatie en een tegenwicht kan vormen voor de neiging tot selectief zoekgedrag naar bevestigende informatie Een hulpmiddel gebaseerd op de methode van systeemdynamica wordt voorgesteld en getest door middel van een experiment Tot slot

worden in hoofdstuk 7 de conclusies besproken van de vier experimenten die werden gepresenteerd in de voorgaande hoofdstukken evenals de gevolgen van dit proefschrift voor theorie en praktijk, de beperkingen van dit onderzoek worden op een rijtje gezet en aanbevelingen voor toekomstig onderzoek worden geformuleerd

Samenvatting van de conclusies: De belangrijkste gevolgen gebaseerd op de empirische bevindingen zijn dat keuze en initiele commitment tot een verlieslatende strategie leiden tot selectieve blootstelling aan informatie maar alleen als het gaat om informatie over de voorbije of toekomstige performantie van de strategie Wanneer de informatie van diagnostische aard is of gerelateerd aan kosten wordt deze neiging tot selectieve blootstelling niet vastgesteld Echter de algemene tendens bij het zoeken naar informatie lijkt te zijn richting niet-bevestigende in plaats van bevestigende informatie, want het totaal aantal aangevraagde bevestigende informatie-items was laag voor zowel gecommiteerde als niet-gecommiteerde respondenten

Het gebruik van causale loop diagrams voor de tweede investeringsbeslissing plaatsvindt, stimuleert de-escalatie en leidt tot een vermindering in de tendens naar selectieve blootstelling wat betreft informatie-items over de (toekomstige) performantie van de strategie

Omdat de niveau's van attitudinale en gedragsmatige commitment van een respondent verschillen in een gegeven situatie, werd besloten dat om escalatiesituaties beter te begrijpen maatstaven voor zowel gedragsmatige als attitudinale commitment nodig zijn Verder, gegeven de verschillende inzichten die voortvloeien uit de maatstaf van escalatie als verandering in commitment versus commitment na de tweede investeringsbeslissing, werd besloten dat om escalatiesituaties beter te begrijpen beide maatstaven nodig zijn

About the author

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